Health Care Financing

Grants and Contracts Report

National Hospital Rate-Setting Study, Vol. IX

Case Study of Prospective Reimbursement in Western Pennsylvania

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Case Study of Prospective Reimbursement in Western Pennsylvania

This report was made pursuant to contract No. 500-78-0036 between Health Care Financing Administration and Abt Associates Incorporated, Cambridge, Massachusetts.

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Published by HEW
Health Care Financing Administration
Office of Research, Demonstrations,
and Statistics
April 1980

WESTERN PENNSYLVANIA

The prospective reimbursement program in western Pennsylvania has been administered by Blue Cross of Western Pennsylvania (BCWP) since the program started in 1971. The program is run with a staff of about fifteen. Analysts review budget proposals and negotiate specific items with hospitals. The voluntary nature of the program from 1974 to 1976 allowed hospitals to enter the program, receive a prospectively set operating budget, and then withdraw. After 1976, hospitals already in the program and those choosing to join were required to remain under prospective reimbursement through June of 1979. For fiscal year 1979, twenty-three of approximately ninety hospitals in the area served by BCWP participated in the program.

The program approves a total allowable operating budget for each participating hospital. Staff at BCWP compute the trends in operating cost between the base year and the rate year for the hospital as a whole and for individual departments. The budget proposal is considered acceptable if these trends in utilization, personnel, and salary costs are comparable to trends for other hospitals in western Pennsylvania. Questionable items in a budget proposal are discussed and negotiated by the BCWP analyst and hospital staff. Issues not resolved in these discussions are passed on to the analyst's supervisor, who reviews the entire budget proposal. It is then passed to senior supervisors who compare the projected budget with the estimate produced by a statistical cost model. The hospital may negotiate further and can ultimately appeal findings to the Budget Appeals Subcommittee. No appeals to the Subcommittee have yet been made.

For participating hospitals to retain their Blue Cross contracts, compliance is mandatory within the BCWP program. If the hospital's expenses exceed the approved budget as a result of uncontrolled spending, the hospital loses half the difference in the following year; conversely, the hospital also is allowed to keep half the savings resulting from underspending. The BCWP program also approves budgets of participating hospitals for reimbursements under Medicare and Medicaid.

ACKNOWLEDGMENTS

The authors would like to acknowledge that information for this case study was provided through personal and telephone interviews, correspondence and secondary data supplied by many people. A list of these people is included in Appendix B of this report.

The authors would like to especially acknowledge Jack Jaeger, Director of Blue Cross of Western Pennsylvania's Prospective Reimbursement Program, whose counsel and knowledge were invaluable.

In addition, the authors would like to thank Mary Schumacher, and earlier Kim Lanzillotti, for their editing assistance in this final product. Extensive thanks go to Sharon Snyder for coordination of the site visits, copy editing, management of production and most importantly, formatting of text and tables. Last, but certainly not least, thanks go to Valerie Simpkins, who assisted in the typing and production of this report.

Also, the authors express sincere appreciation to HCFA staff for their technical assistance, especially to prior project officers, Fred Hellinger, Ruth Lis, Arne Anderson, and Bruce Steinhardt.

TABLE OF CONTENTS

Foreword	vii
INTRODUCTION	1
General Program Description	1
ADOPTION	6
CONTENT AND PROCESS	14
Organization	14
Timing	14
Process	17
Description of the 1974 to 1976 Program	17
Determination of Base-Year (Latest Audited Year) Operating Per Diem Rate	19
Determination of Current-Year Operating Per Diem Rate	19
Determination of Prospective-Year Operating Per Diem Rate	19
Determination of Prospective-Year Nonoperating Per Diem Rate without Building Depreciation	22
Rate Adjustments	23
Appeals	26
Changes in Methodology Over 1974-1976 Period	27
Data Requirements	27
The 1977-1979 Program	28
Predictive Cost Model	29
Procedure for Establishing the Predicted Cost	30
The Independent Variables	31
The Predicated Model as a Screen	32
Detailed Budget Review Procedure	32
Hospital Management Studies	34
Program Cost	34

TABLE OF CONTENTS

(continued)

INTERACTIONS 35

SUMMARY OF BCWP PROSPECTIVE REIMBURSEMENT PERFORMANCE: A PRELIMINARY ASSESSMENT OF PROGRAM RIGOR, INCENTIVES AND EQUITY 43

Program Rigor 44

Equity 46

Efficiency 47

APPENDIX A: List of Hospitals in Voluntary PR Programs Administered by BCWP 49

APPENDIX B: Persons Who Provided Information Used in this Case Study 53

LIST OF TABLES

1	Hospital Distribution in Western Pennsylvania	2
2	Chronology of Reimbursement Experiments	9
3	Time Frame of Annual Prospective Budget Cycle	16
4	Percentage Wage Change for Selected Occupations	21
5	Estimated Cost of BCWP's Prospective Reimbursement Department, 1974-1979	36
A-1	List of Hospitals in Voluntary PR Programs Administered by BCWP	51

LIST OF FIGURES

1	Comparison of Hospital Indicators: Capacity, Volume of Service and Utilization for Community Hospitals, 1969-1977	4
2	Comparison of Hospital Indicators: Expense, Total Revenue and Assets for Community Hospitals, 1969-1977	5
3	Organization of Prospective Reimbursement Program	15

FOREWORD

The following case study report of prospective reimbursement in western Pennsylvania has been written as part of the National Hospital Rate-Setting Study. This study is being conducted for the Office of Research, Demonstrations, and Statistics of the Health Care Financing Administration, U.S. Department of Health, Education, and Welfare, by Abt Associates Inc., Policy Analysis, Inc., and Health Economics Research, Inc.* The overall goal of the three-year study is to determine the impact of rate setting on hospital costs, quality of hospital care, and access to health care by the elderly and the economically disadvantaged. In addition, the study will examine the impact of prospective reimbursement on other areas of hospital performance, including revenues, volume and composition of services, productivity, wages, case mix, and administrative behavior. Because the effects of prospective reimbursement may be felt beyond the hospital sector, the study will also examine impacts on the costs and utilization of the health care system as a whole.

This volume is one of nine case study reports (Arizona, Connecticut, Maryland, Massachusetts, Minnesota, New Jersey, New York, Washington, and Western Pennsylvania). Each report examines in detail the adoption, implementation, review processes and legal challenges of each prospective reimbursement system. In addition, the reports examine linkages and interactions that take place between rate-setting agencies and other organizations such as planning groups, hospital associations, third party payors, and unions. Each case study also presents a preliminary analysis of the potential rigor and equity of the prospective reimbursement system. (A separate report, A Comparative Analysis of Nine Prospective Reimbursement Programs, analyzes all nine programs simultaneously along these factors.) The case study reports will be most useful to those interested in a detailed description of the prospective reimbursement programs in the nine states under study.

The preliminary analyses of rigor and equity in the case studies are interim in nature. Data collection on hospital performance is still ongoing and will yield important information about the effectiveness of administrative structures and procedures in containing costs and delivering quality service. Final results of the study are expected in 1982.

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Director of Case Studies
National Hospital
Rate-Setting Study

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*Arthur D. Little, Inc. and Arthur Andersen & Co. are also participating in the National Hospital Rate-Setting Study but were not involved in the case studies.

INTRODUCTION

General Program Description

At the end of 1978, the Commonwealth of Pennsylvania had neither rate regulation nor Certificate of Need (CON) legislation. This lack of regulation has encouraged Blue Cross of Western Pennsylvania (BCWP) to develop and implement a series of reimbursement experiments unencumbered by state controls. All the experiments have been based on voluntary hospital participation. Three hospitals participated in the first incentive reimbursement experiment in 1968. The first prospective reimbursement (PR) program began in fiscal year (FY) 1972 with five hospitals. Currently, twenty-three hospitals participate in BCWP's prospective reimbursement program, representing less than twenty-five percent of those hospitals that have contracts with BCWP.

Since the original PR experiment in FYs 1972 and 1973, the voluntary program has changed in several respects. First, the earlier program (1972-73) prospectively reimbursed only Blue Cross inpatient costs; the current program reimburses Medicare, Medicaid, and Blue Cross inpatient costs, and Medicare and Blue Cross outpatient costs. Second, the earlier program imposed a twelve percent reimbursement ceiling above a hospital's group weighted average cost; the current program raised the ceiling to fifteen percent. Finally, the earlier program calculated a prospective per diem rate using budget review and mechanistic calculations of inflation rates; the current program calculates a prospective total allowable operating budget using budget review and a predicted cost model. Although the methodology has changed, it still combines review and analysis of a hospital's budget with two types of controls--those based upon interhospital comparisons among similar hospitals and those based upon projected indices of natural expense categories.

The BCWP catchment area contains ninety-nine hospitals. Seventeen hospitals, which account for half of BCWP hospital payments, are advanced teaching hospitals with three or more approved residency programs. Thirty-eight other hospitals have a small teaching program. The remaining forty-four hospitals are nonteaching hospitals. As might be expected, teaching and advanced teaching hospitals are concentrated in the metropolitan Pittsburgh region; of forty-eight hospitals in this region, thirty-four are either teaching or advanced teaching hospitals.

Metropolitan Pittsburgh comprises Allegheny County and its five contiguous counties. The remaining urban areas in western Pennsylvania--Erie, Johnstown, and Altoona--also comprise six counties, while rural western

Pennsylvania encompasses seventeen counties. Table 1 summarizes the BCWP hospital distribution within these counties.

TABLE 1: Hospital Distribution in Western Pennsylvania

Region	Number of Advanced Teaching Hospitals	Number of Teaching Hospitals	Number of Nonteaching Hospitals
Metropolitan Pittsburgh	13	21	14
Urban	4	10	10
Rural	0	7	20

Source: BCWP memorandum on participating hospital reimbursement classification, May 15, 1978.

Before describing the prospective reimbursement programs developed and implemented by BCWP, it is useful to consider the reasons why Blue Cross would serve both as the impetus and initiator of a PR program. Although private health insurors have increased their revenues with the rapid rise in health care costs, a company can increase its market share if it can provide a better and/or cheaper service. As a cost-based payor, BCWP already has a significant marketing advantage over charge-based payors, but the advantage is frequently offset by the limited scope of Blue Cross insurance. Indemnity insurors that offer a wide range of nonhealth insurance coverage become an attractive alternative for large employers because a single insuror will handle a company's total insurance need and, in so doing, will provide health insurance to large groups of employees. To capture a larger share of this large group business, BCWP may see its PR programs as a cost containment activity. Therefore, if BCWP can hold down its hospital insurance premiums by holding down hospital costs, it may be able to increase its business.

At present, BCWP covers about sixty percent of the population, including those over sixty-five years old with supplemental health insurance. The percentage has grown recently, with BCWP taking over the health insurance of Westinghouse employees and some United Mine Workers' plans. BCWP also is the hospital insuror for the three health maintenance organizations (HMOs)

that have been established since March 1974.[1] None of the HMOs uses PR hospitals as the primary provider of acute care services. Nevertheless, to the extent that PR has contained hospital costs, BCWP's competitive position should have improved vis-a-vis its private competitors.

Because the voluntary nature of the reimbursement experiments has allowed hospitals to drop the program if they were dissatisfied,[2] there is no consistent set of hospitals that can be reliably used to graphically compare treatment and nontreatment hospitals. Nevertheless, comparisons with national data and with hospitals located in SMSAs in the rest of the state are illustrative of trend differences in western Pennsylvania.

As shown in the graphs displayed in Figures 1 and 2, the differences within Pennsylvania are frequently much smaller than the differences between Pennsylvania's and the national trend. Growth in the number of beds between 1972 and 1977 was slightly higher in the western Pennsylvania SMSAs than in the nonwestern SMSAs, but both were much lower than the eleven percent growth that occurred in the United States. Similarly, the United States has outpaced western and nonwestern Pennsylvania in adjusted patient day growth. The differences within Pennsylvania are more pronounced, however; since at least 1972, western Pennsylvania hospitals have consistently shown a smaller rate of increase in adjusted patient days than the state's nonwestern sector. The state also shows different trends in occupancy level. Since 1972, national occupancy levels have been declining and are now below seventy-four percent. In both western and nonwestern Pennsylvania SMSAs, occupancy levels have remained constant and have always been somewhat higher (in the range of seventy-seven to seventy-eight percent) than national levels. Length of stay (LOS) is also higher in western and nonwestern Pennsylvania than in the nation.

The differences between western and nonwestern Pennsylvania and the nation decrease when expense per adjusted patient day and assets per bed are considered. The differences within Pennsylvania are also minimal, although there is some evidence of a higher level and faster growth in assets per bed in western Pennsylvania. This finding is consistent with the high level of capital investment that has been undertaken in western Pennsylvania since 1976 (see the section on interactions).

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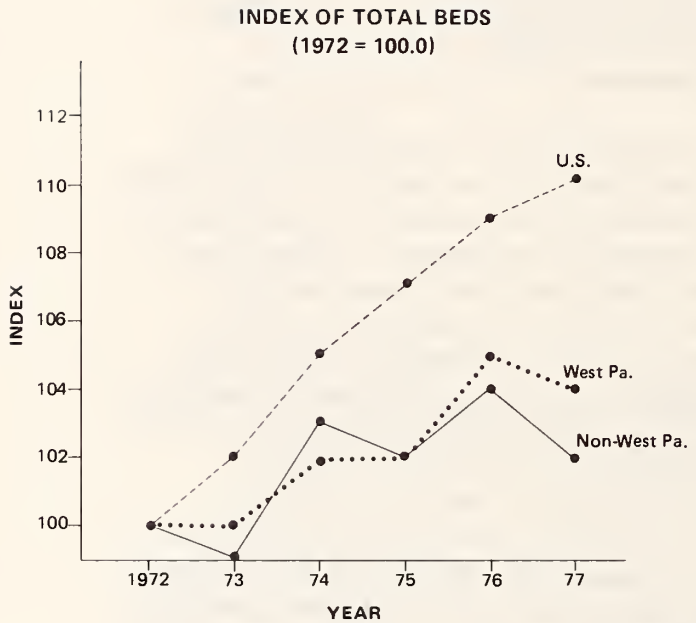
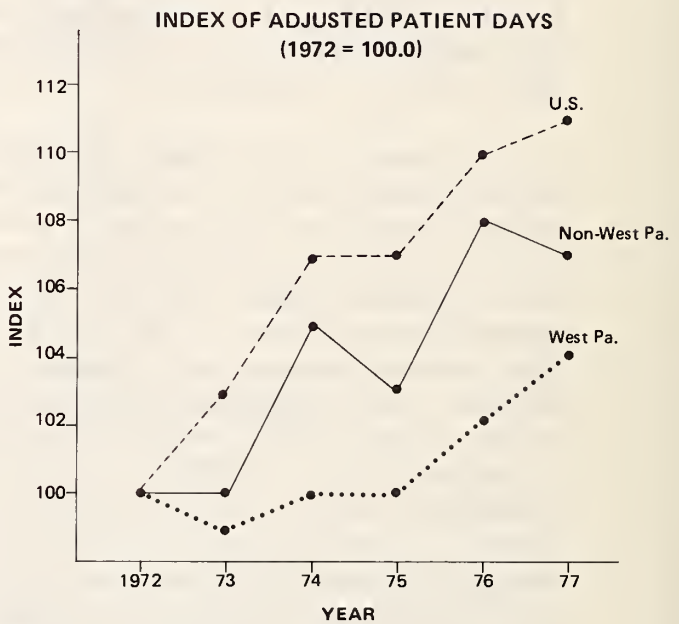
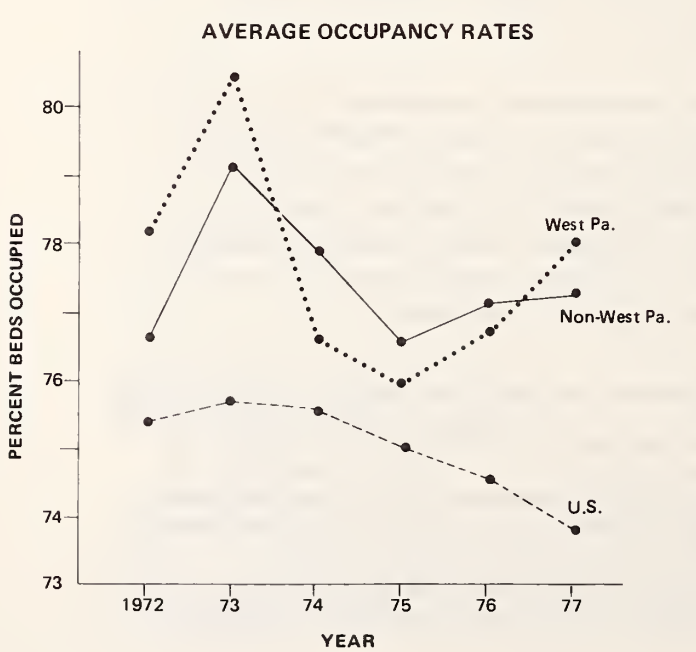
[1]The largest plan, with about 20,000 members, is the Penn Group Health Plan in Pittsburgh. Begun in June 1975, it is the only federally qualified plan in the region. The first HMO was initiated in Washington County in southwest Pennsylvania and serves a population with a high proportion of coal mining families. The third HMO, begun in October 1975, has a closer connection with BCWP than do the others. BCWP is the primary sales representative for the plan, known as the Central Medical Health Plan.

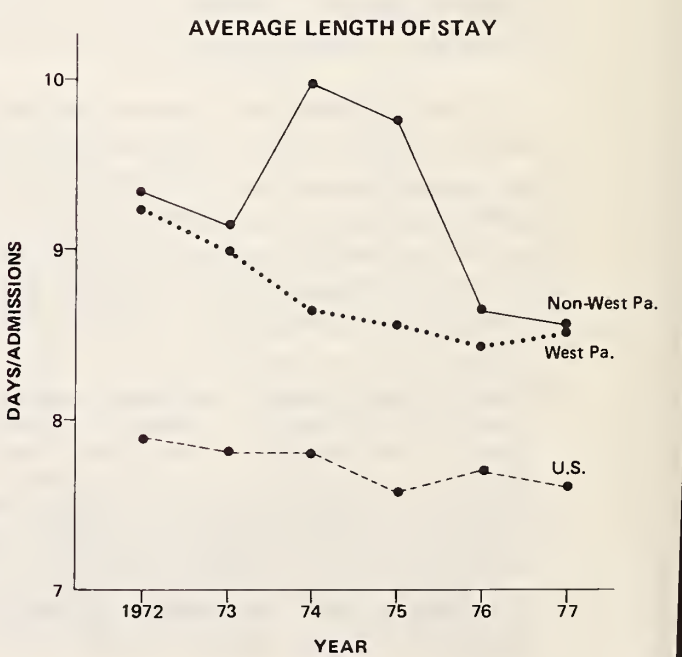
[2]A condition of the present program begun in FY 1977 is that hospitals may join at any time, but they must remain in the program until June 30, 1979.

Figure 1
COMPARISON OF HOSPITAL INDICATORS:
Capacity, Volume of Service and Utilization
for Community Hospitals, 1969-1977
WESTERN PENNSYLVANIA vs. U.S.





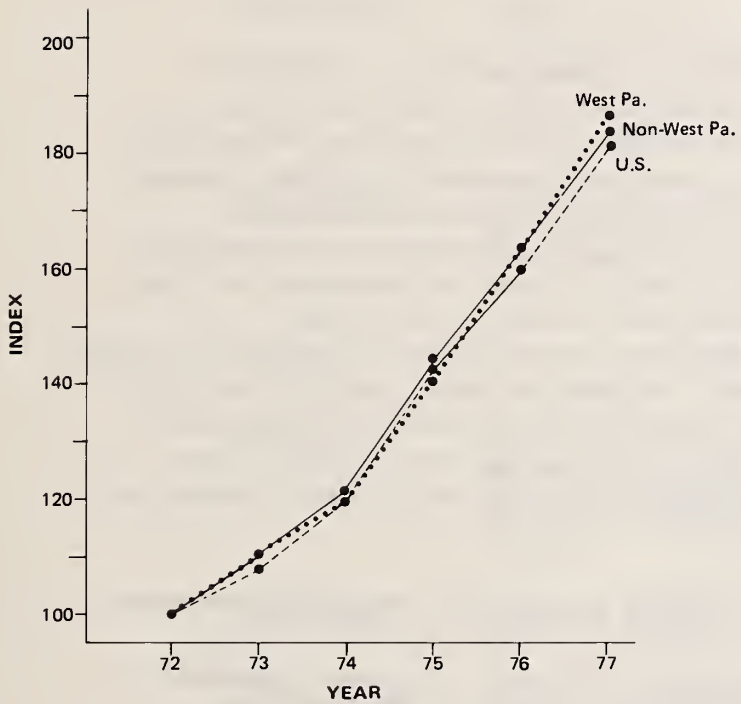




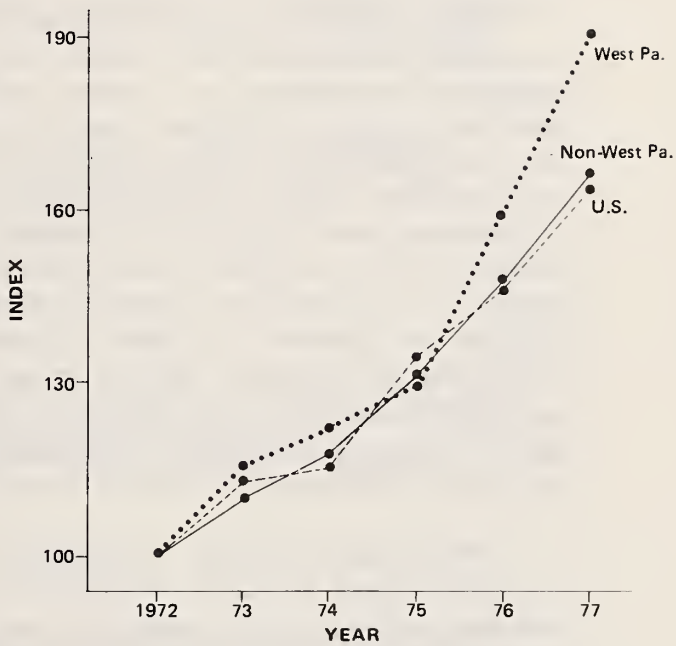
Sources: U.S. Bureau of the Census
American Hospital Association, *Hospital Statistics*

Figure 2
COMPARISON OF HOSPITAL INDICATORS:
Expense, Total Revenue and Assets for Community Hospitals, 1969-1977
WESTERN PENNSYLVANIA vs. U.S.

INDEX OF HOSPITAL EXPENSE PER DIEM*
(1972 = 100.0)



INDEX OF ASSETS PER BED
(1972 = 100.0)



*Per adjusted patient day.

Sources: U.S. Bureau of the Census
American Hospital Association, *Hospital Statistics*

The remainder of this report is divided into five sections. The following section reviews the history behind the adoption of the reimbursement experiments. The third section discusses the methodology of the PR programs in effect from 1974 to 1976 and from 1977 to 1979. The fourth section investigates the interactions between BCWP and state agencies, planning agencies, and hospitals; other groups that may interact occasionally are discussed briefly. A preliminary assessment of the efficiency, rigor, and equity of the PR program is presented in the final section, which also summarizes the strengths and weaknesses of the BCWP programs.

ADOPTION

BCWP's interest in cost containment is long standing. Since 1951, its normal retrospective reimbursement contracts had stipulated that hospitals were subject to a group reimbursement ceiling set at ten percent above the weighted average cost of all hospitals within the group. Groupings were based originally on location, with three classifications--metropolitan, urban, and nonurban.[1] In 1966, the groupings were expanded to differentiate hospitals by teaching status as well as location, and the resultant nine hospital classifications still exist.[2] In FY 1974, however, an alternative grouping classification was written into each hospital's contract with BCWP so that a hospital's classification could be determined by the point values it accumulated for nonroutine services and its teaching status. Point values range from one to four, based on the type of nonroutine service provided; and from one to three points, based on the type of educational program provided.

The relative number of points assigned to specific nonroutine services and educational programs measures the relative overall effect on total hospital expense of the specific service or program. This was determined from the subjective estimates of administrators, physicians, and controllers of the effect of each service or educational program on total hospital cost. Final specific point values were assigned as follows.

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[1]Metropolitan hospitals are defined as those in Allegheny County and its five contiguous counties. Hospitals in a county where fifty percent of the population are considered urban are classified as urban hospitals. All other hospitals are classified as nonurban.

[2]If a group has fewer than five hospitals, which currently applies to the urban advanced teaching group, the effective reimbursement ceiling is that of the next higher group.

Nonroutine Services:

One Point - Physical Therapy, twenty-four hour by Intern or Resident, Emergency Room Coverage, Ambulance Service, Radium Therapy, Inhalation Therapy, Occupational/ Recreation Therapy;

Two Points - Cardiac Arrest Team, Nuclear Medicine, Rehabilitation Inpatient Unit, Premature Nursery;

Three Points - Twenty-four hour Emergency Room Coverage by paid physician, Regional Burn Center, Full-time Salaried Chief of Service, Cardiac Care Unit, Psychiatric Inpatient Unit;

Four Points - Regional Dialysis Center, Advanced Radiology, Regional Obstetrics or Pediatric Center, Open Heart Surgery, Intensive Care Unit.

Educational Status:

One Point - Affiliated Residency Program, Hospital-affiliated School of Nursing, Hospital-controlled Licensed Practical Nursing School or Technical School;

Two Points - Approved Intern Program;

Three Points - Approved Residency Program, Hospital-controlled School of Nursing.

Hospitals are divided into four groups, based on their total point value, which represent nonroutine services and educational programs provided as follows: Group A with zero to nine points and Group B with ten to twenty-eight points have about thirty-six hospitals each; approximately thirteen Group C hospitals with twenty-nine to fifty-four points; and about ten Group D hospitals with fifty-five or more points.

BCWP automatically assigns a hospital to its higher ceiling group. Although the group remains the same for each third-party reimburser, the per diem value of the ceiling differs. The manner in which hospitals are assigned to a group diminishes the size of the potential penalty that would result if hospitals were placed in their lower ceiling groups.

Since FY 1967, hospitals have been able to appeal their ceiling limit to a Reimbursement Appeals Committee comprised of hospital, Blue Cross, and public representatives. Roughly half of the dollar value of the appeals has been granted, indicating that BCWP has administered a cost containment effort with some rigor. Even if a hospital does not exceed the ceiling, its administrator is aware that the hospital's operating cost ought to be comparable to that of its peer group. It is important to emphasize that all hospitals, not just PR hospitals, are subject to a reimbursement ceiling.

The PR program is a continuation of BCWP's cost containment activities. Table 2 presents a chronology of the different programs that have been instituted since the advent of Medicare and Medicaid.

In 1968, a one-year incentive reimbursement experiment was initiated in three hospitals.[1] The incentive reimbursement experiment was sponsored by the National Center for Health Services Research and Development, and cost containment studies were initiated by industrial engineers assigned to each of the hospitals. If a study was implemented, fifty percent of the actual cost savings to Blue Cross was paid as an incentive. In one year, the hospitals achieved a five percent reduction in payroll costs. With Blue Cross patient days accounting for forty percent of the total days, the reimbursed savings were only twenty percent of the total reduction in costs. Thus, the bonus was negligible in relation to total hospital revenue or costs. The experiment also showed that the effectiveness of the engineer varied directly with the support from the hospital's top management. More importantly, the experiment demonstrated that reimbursement tied to individual departments was not viable if savings in one department were offset by higher costs in others.

An initial effort to learn about prospective reimbursement also took place in 1968. A pilot study was designed to evaluate the effectiveness and practicality of negotiating and approving a budget for prospective reimbursement purposes. A dry run of the process, which did not affect the usual retrospective reimbursement received by the hospital, was conducted in a small rural hospital. The study revealed that, while in theory a negotiated budget form of reimbursement might be desirable to both hospital and third-party payor, in reality, the overall amount of time, expense, and administrative effort required by Blue Cross to conduct the negotiation and review phases was much greater than the potential value of the cost containment. It was apparent from the negotiated budget experiment that specific guidelines or maximums were needed for use by the reviewing staff. Furthermore, standard accounting procedures and reporting forms were also necessary in order to make interhospital comparisons accurate.

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[1]The three hospitals were Presbyterian University Hospital, Columbia Hospital (now part of the Forbes Health System), and Westmoreland Hospital.

TABLE 2: Chronology of Reimbursement Experiments

Year	Type of Program	Incentive to Participate	Number of Hospitals
1968	Use of industrial engineers	Reimbursement bonus of 50% of savings	3
1968	Dry-run negotiated budget	Education	1
1972-1973	Prospective rate reimbursement	Reimbursement bonus of 50% of savings, higher group ceiling	5
1974-1976	Prospective rate reimbursement	Reimbursement bonus of 50% of savings, higher group ceiling	5-19
1977-1979	Prospective rate reimbursement	Reimbursement bonus of 50% of savings, higher group ceiling	21-23

In order to compensate for the disadvantages of the negotiated budget pilot study, a prospective reimbursement program with five participating hospitals was initiated in FY 1972 with specific formulae and guidelines to prevent unreasonable costs. The actual cost for the previous fiscal year was designated as the base year. A target rate was then projected through a portion of the current year as well as the prospective year. Rates of change in expenses were measured against and controlled by the rates of change of similar cost components in the general economy. Capital expenditures were considered separately and excluded from formula maxima but were subject to prior approval by the area-wide planning agency as applicable (over $100,000). As a final control, the reimbursement rate was limited by a twelve percent ceiling above the hospital's peer group average rate, with the appeals procedure contained in the Blue Cross hospital contract as the only means of relief. This ceiling, however, was more generous than the ten percent ceiling that applied to all nonparticipating hospitals. Blue Cross retained the right to review and evaluate the reasonableness of current-year and budgeted prospective-year expenses and adjust them appropriately on the basis of guidelines, formulae, cost analyses of the institution, and negotiation as necessary.

Each hospital was required to submit a budget that had been approved by its board of directors. Budget figures, which included revenue, expenses, and back-up data, were reported on standard forms. Prior to application of the externally determined controls, the budget was reviewed in detail by Blue Cross analysts for reasonableness. The analysts based their decisions on examination of trends in various categories of total and per-unit costs. Trends in productivity and intensity were reviewed only if a particular department's costs were out of line according to a set of general guidelines to identify and isolate budget items that exhibited questionable increases. When necessary, further investigation was done, often requiring additional explanatory material and/or field trips to the hospitals. Blue Cross recommended adjustments to the budget when it was judged that certain items were unreasonable, and if the hospital agreed to the revised budget, the external prospective controls were applied.

The external control involved the construction of indices to constrain increases in expense categories by establishing maxima based upon indicators of the general economy; e.g., Bureau of Labor Statistics, area wage surveys, and consumer price index. No prospective rate increases were accepted that exceeded the combined average of the hospital's individual departmental rate of change and the rate of change according to the external control.

The rate of increase for a specific hospital could not exceed a maximum limit, which was the average of the hospital's rate and that of all hospitals in the group in which the hospital had been classified. By applying this

maximum, the current-year expense was established as the lesser of actual/estimated expenditures (eight months' actual, four months' estimated) or the per diem cost resulting from application of the maximum. This control prevented large prior-year cost increases for a hospital from being passed through in total to the prospective year.

Prospective rates were determined by adjusting the current year's operating per diem to a projected operating per diem and then adding a projected per diem for nonoperating expenses and changes in facilities and services. Factors used in setting the prospective rate and evaluating the reasonableness of future expenses were a hospital's average cost change experience and selected national and regional economic indices.

One unique feature of this program is worthy of note. Hospitals were at fifty percent risk on both the up and down sides. That is, when final actual audited costs for the rate year became known, hospitals whose costs were above the projected amount received fifty percent of the excess. Similarly, for any underruns of the projected cost level, hospitals were allowed to keep fifty percent of the savings.

An evaluation[1] of this program found that, between 1972-1974, inflation in inpatient cost per day averaged 7.8 percent in the five PR hospitals and 10.4 percent in a matched control group of five other western Pennsylvania hospitals. In 1971, the year prior to the program, per diem costs had risen 14.6 percent for the PR hospitals and only 7.8 percent for the control group, although on a total inpatient cost basis, there was no significant cost difference between PR and control hospitals. Patient days for the PR hospitals declined 9.9 percent between 1971-1973 but only 4.3 percent in the control hospitals.

The PR hospitals rapidly increased their intensity, scope of services, and outpatient volume to compensate for the lack of inpatients. These hospitals, predominantly rural, had also been suffering substantial net losses. Each improved its surplus position over the evaluation period; as a group, the five hospitals went from a deficit of 4.2 percent of total revenues to a deficit of 0.5 percent, essentially a breakeven financial performance.

One additional point about this first PR experiment is worthy of note: the evaluators concluded that the budget review process was generally informal. Objective and quantitative standards to determine the allowable maximum rate of change or absolute levels for specific line items were not developed; only general guidelines were written to identify the need for further budget analyses.

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[1] Applied Management Sciences, Analysis of Prospective Reimbursement Systems: Western Pennsylvania, Final Report, SSA/ORS Contract #HEW-OS-74-226, August 1975.

Although the results of the experiment were inconclusive, BCWP and the hospitals felt that the program helped to contain costs. Consequently, beginning in FY 1974, prospective reimbursement became one of three methods that a hospital could choose for its Blue Cross reimbursement. Besides retrospective reimbursement, a hospital could also choose reimbursement based on costs predicted by a regression-based cost model. Only one hospital, Westmoreland Hospital, selected this method, and for only one year, FY 1974. Because of its limited applicability, the discussion of the model is described with the current prospective budgeting program begun in FY 1977, where it is used as a screening tool.

The BCWP reimbursement contract that became effective on July 1, 1973, and which is still in effect, has other innovations besides prospective and predicted cost model reimbursements. For instance:

- Building depreciation allowance was modified. The hospital now has a choice of straight-line depreciation not to exceed four percent of total costs or the traditional three percent allowance previously mandated for Blue Cross reimbursement.

- Hospitals had a choice of two hospital grouping mechanisms and were placed in the one with the higher ceiling limit.

- Advance payments were available to hospitals for claims in process, to help relieve cash flow problems, and to provide working capital.

These three reimbursement methods were initiated in a period that fostered several attempts to control hospital costs. Medicare and Medicaid program costs were becoming visible, and the Economic Stabilization Program was continued in the hospital industry after it was terminated for all other goods and services. Pennsylvania also had an activist Insurance Commissioner who had submitted thirty-three guidelines to all of the Blue Cross plans in the state for inclusion in hospital reimbursement contracts then being negotiated.

During this period, the American Hospital Association and the Hospital Association of Pennsylvania (HAP) favored an independent rate-setting commission. The latter favored a provider dominated commission to circumvent the state's Insurance Commissioner. The state's Health Department tried to compromise with HAP on a rate-setting commission that would be less controlled by the hospitals, but a compromise could not be reached and the opportunity for rate regulation passed when the Commissioner resigned in March 1974. Further regulatory efforts have not passed the state legislature due in part to the fact that HAP reversed its position and now does not want state regulation.

In FY 1974, the five hospitals that had participated in the 1972 and 1973 PR experiment selected the PR option that had been newly included in the BCWP reimbursement contract. While the earlier experiment had been concerned with Blue Cross reimbursement only, beginning in 1974, Medicare reimbursement also became an option for PR. Four of the five hospitals agreed to have the PR program determine both Blue Cross and Medicare reimbursement. Hospitals that were prospectively reimbursed for Medicare received a waiver from the Section 223 Routine Cost Ceiling. It would seem that this incentive,[1] coupled with the higher ceiling limits of the PR program, might attract high cost hospitals into the program. However, this did not happen, at least in the early years. Of the four hospitals that chose PR for Medicare reimbursement, none was above the normal ten percent ceiling, and in fact, two experienced costs below their group's average.

Eleven hospitals selected the Medicare PR option in FY 1975. Again, none was above the normal ten percent ceiling and six experienced costs below their group's average. In FY 1976, three[2] of sixteen Medicare participating hospitals exceeded the retrospective ten percent ceiling; eight experienced below average costs. Data for FYs 1977 and 1978 have not yet been finalized.

A list of the hospitals that have participated in the PR program, the years in which they participated, and the payors covered by PR are displayed in Appendix A. Thirty-two hospitals have had a portion of their costs reimbursed prospectively, seventeen of which are located in the Pittsburgh metropolitan area. Five of the hospitals are classified as advanced teaching hospitals with at least three active residency programs. Sixteen, or half the hospitals, are lesser teaching institutions.

Until FY 1977, hospitals could drop out of the PR program at the end of each fiscal year. One hospital dropped out at the end of FY 1974, none dropped out in FY 1975 (one did drop PR for Medicare, but it maintained PR for Blue Cross payments), and six hospitals dropped the program at the end of FY 1976. It is probable that two significant factors caused these hospitals to drop the program. First, hospitals joining the program in FY 1977 had to commit themselves to the program through FY 1979. Second, PR was expanded to include the three major cost payors--Blue Cross, Medicare, and Medicaid--which meant that most of a hospital's costs would be covered under the program. In FY 1977, a major methodological change was also instituted in the PR program. For that reason, the BCWP PR program that

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[1] BCWP believes that waiving Section 223 was not an incentive because the total costs of most, if not all, western Pennsylvania hospitals are significantly lower than their Section 223 ceilings.

[2] Allegheny General, South Hills Health System - The Homestead and St. Joseph Divisions.

must be evaluated is described below as two distinct programs. The first program, which existed between 1974 and 1976, is called the prospective rate program. The second is the prospective budgeting program, which has been followed since 1977.

CONTENT AND PROCESS

Organization

The prospective reimbursement program was organized in 1973 with a staff of one professional, its present Director. Between 1974 and 1976, staff varied between six and seven. As of December 1978, the staff had grown, and varied between 14 and 15 people.

Organizationally, the prospective reimbursement program is a part of the actuarial and accounting division of BCWP. A chart of the organization is presented as Figure 3. The Director of the Reimbursement Programs, who administers PR, has a bachelor's degree in Business Administration and has been working for BCWP since 1966. The Assistant Director and Coordinator of Government Programs has a bachelor's degree in Business Administration and has been employed with BCWP since 1967. The Budget Review Manager also has a bachelor's degree in Business Administration and has been with BCWP since 1969. The manager responsible for developing the provider information system and predictive cost model has a B.S. in Industrial Engineering and an MBA degree has been employed by BCWP since 1973. Most of the remaining staff majored in accounting and graduated from college with bachelors' degrees in Business Administration.

Timing

The current time frame for setting prospective budgets is shown in Table 3.1 Of the nine events in the process, three are performed on an exception basis; they are only completed when dictated by circumstances. Most of the remaining tasks slip their deadlines by as much as three months. Slippage of budget deadlines is usually caused by delays in budget submission by the hospitals or by BCWP's finding significant problems in negotiating an approved budget. The looseness with which deadlines are met is not a major concern to the hospitals; hospitals have rarely been distressed with delays in the receipt of their prospective budgets. Between the end of the current fiscal year and the setting of next year's prospective budget, a hospital receives an interim reimbursement based on a conservative inflation estimate. In cases where a hospital believed that its interim rate was too low,

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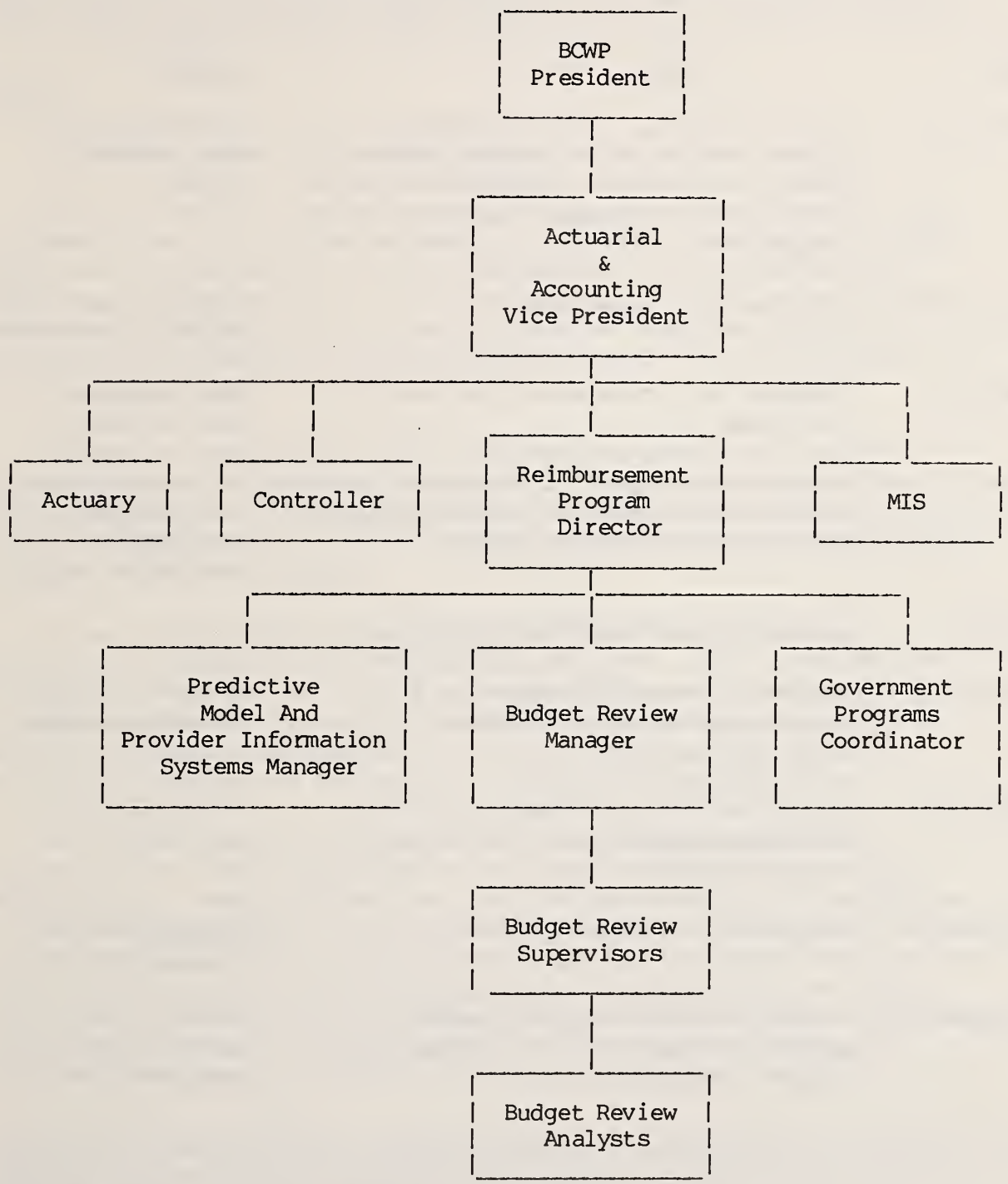
[1]The 1974-1976 prospective rate program excluded the May 15 deadline for completion of the revisions to the predicted cost model. Current-year budgets were due from the hospitals by May 15 instead of June 1. Prospective rates were to be set by July 1 instead of the present August 1.

Figure 3: ORGANIZATION OF PROSPECTIVE REIMBURSEMENT PROGRAM



Source: Director of Prospective Reimbursement Program

TABLE 3: Time Frame of Annual Prospective Budget Cycle

Date	Event	Remarks
March 15	Furnish hospitals with a schedule of indices and the annual average rate of change over the past five years for each index to project costs of natural expense categories	Completed only upon hospital request
April 1	Complete prior year's audit	Realistic goal but subject to slippage
May 15	Complete any revisions to the predicted cost model	Task done only when necessary
June 1	Receive current-year (eight months' actual/ four months' estimated) data and prospective-year budget from hospitals	Not all hospitals meet deadline; most budgets received by July 1
July 1	Beginning of prospective fiscal year	
August 1	Approve prospective budgets for all hospitals within five percent of predicted cost model	Frequently slips one to two months
September 1	Approve prospective budgets differing from the predicted cost model by more than five percent	Frequently slips two months
November 1	Complete first quarter review	Frequently slips three months
December 31	Review accuracy of indices used to project this year's cost for the natural expense categories	Task done as needed. Deadline extended to Jan. 31

intervention by BCWP executives occasionally increased the rate. Differences between the interim rate and the approved rate are settled after completion of the applicable third-party payor's audit. The interim reimbursement is not used as a lever to control operating costs.

Process

Description of the 1974 to 1976 Program

Under this program, PR hospitals had a per diem maximum for Blue Cross reimbursement that was twelve percent above the actual weighted average per diem of all the hospitals in a particular group. Hospitals not in the program were subject to a ten percent retrospective ceiling for Blue Cross reimbursement. In addition, the Medicare routine inpatient care ceiling was waived for PR hospitals and replaced by a twelve percent ceiling on total operating costs.[1]

Prospective reimbursement under this program applied only to the inpatient services of participating hospitals; outpatient costs continued to be reimbursed on a retrospective basis. Reimbursement principles that determined allowable costs under Blue Cross and Medicare agreements remained in effect during this program.

In the determination of the prospective rate, expenditures were classified into operating and nonoperating expenses. (The latter included depreciation,[2] interest on capital indebtedness, and rentals and leases of capital equipment.) The rate of inflation for each expense category was determined separately, multiplied by the expense's percentage of total expenses, and then summed to establish a prospective per diem rate.

The period for which the prospective rate applied was called the prospective year. Two years prior to the prospective year was the base year, the most recently audited year, and one year prior to the prospective year was the current year. To calculate a prospective reimbursement rate, a combination budget review and formulistic approach was used. The prospective reimbursement methodology projected a base per diem from the latest audited fiscal year through the prospective year. This required a detailed review, analysis, and classification of each participating hospital's current and budgeted years' operating and capital expenses and revenue.

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[1] A downward adjustment in the ceilings is made for hospitals that exclude physician reimbursement and hospital-based physician payments from their reported costs, provided a majority of hospitals within a group report these costs.

[2] To encourage all western Pennsylvania hospitals to fund depreciation, BCWP does not treat investment income on funded depreciation as a reduction of allowable interest expense.

The current actual/estimated budget and the prospective-year budget were reviewed for accuracy and evaluated for reasonableness by comparison of budgeted rates of increase--in total and by expense category--with historical experience. This comparison was made in order to identify those items that required further investigation or justification. Increases that appeared excessive, based upon general guidelines that related volume and services to full-time equivalents, to revenue, and to expense, were investigated at the hospital by the analyst. Once the analyst approved the budgeted figures, the costs were reclassified and applied to the methodology described below.

The current and prospective budgets were compared by a budget analyst to the base-year results and to the current-year actual/estimated budget, respectively. (For example, for each hospital, the expense categories' inflation rates for the current year were the rates of change between the current year's estimated actual expenses and the prior base year's audited results.) Analytic judgment became important in establishing the current year's budget and inflation rate, since controlling one or both of these factors could lower the allowed growth from the current to the prospective year. The inflation rates that were currently established in a given hospital were compared to the combined average rates for the hospital and its group in the three prior years. The methodology allowed the lower of the combined average or the hospital's rate. The importance of staff judgment was enhanced because no objective and quantitative standards were established to identify excessive cost and volume increases or productivity decreases.

In order to obtain the prospective rate, the following steps were taken:

- determination of the actual operating per diem for the base year;
- adjustment of the base-year operating per diem to the estimated/actual current-year operating per diem;
- adjustment of the operating per diem for the current year to a projected operating per diem for the prospective year; and
- calculation of the prospective rate by adding the projected operating per diem to a projected per diem for nonoperating expenses and changes in facilities and services.

The resultant prospective per diem Blue Cross and/or Medicare rate was paid to the hospital. The following section presents a more detailed discussion of the operation of this program.

Determination of Base-Year (Latest Audited Year) Operating Per Diem Rate. Base-year per diems were determined for both Blue Cross and Medicare. (The latter was not examined if the hospital chose retrospective Medicare reimbursement.) The analysts first determined an overall average cost per inpatient day. Total inpatient expense (used as the numerator) was defined as total audited allowable expense less adjustments, building and equipment depreciation, interest expense, and outpatient expense.

The total inpatient expense also served as the base from which Medicare inpatient expenses were subtracted to obtain the total inpatient cost to non-Medicare patients; dividing by non-Medicare inpatient days achieves the base-year operating per diem applied to Blue Cross patients. The Medicare operating per diem rate was the audited Medicare inpatient expense divided by Medicare patient days.

Determination of Current-Year Operating Per Diem Rate. For the three years prior to the current year, a hospital's average rate of change is determined for its general expenses per bed, general inpatient cost per day, and other ancillary costs. General expenses pertains to the nonrevenue-producing departments. General inpatient cost includes nursing and predominantly inpatient service or ancillary areas. Other ancillary cost refers to outpatient cost and the more outpatient-oriented ancillary service cost. The rate of change for these services is also computed for the same time frame for all hospitals in the hospital's group, which contains both PR and non-PR hospitals. A hospital's rate of change was combined with the group's rate of change to produce a combined average rate of change. This combined average rate of change for each of the three cost categories became the maximum rate of change allowed for base-year costs. If a hospital's estimated rate of change from the base to its current year was less than the maximum, the hospital was allowed its own estimated rate of change.

The current year's estimated cost for general operations, general inpatient care, and other ancillary services was then determined by multiplying the appropriate base-year unit cost by the estimated current-year units and the lesser of the two computed rates of change (hospital alone or combined with its group. The products were summed and adjusted to account for any changes in facilities and services that occurred in the current year vis-a-vis the base year. Removing outpatient costs and dividing by total inpatient days resulted in the hospital's current-year adjusted average inpatient operating per diem cost. The current-year operating per diem for Blue Cross payment was obtained by multiplying the Blue Cross base-year operating per diem by the percentage change in total inpatient per diem between the base and current years; the Medicare current-year operating per diem is obtained in a similar manner.

Determination of the Prospective-Year Operating Per Diem Rate. In projecting prospective rates, BCWP uses a series of input price indices

applied to specific cost categories. A brief discussion of these indices precedes a description of how they are used in the methodology.

1. Input Price Indices

The indices were selected to reflect the general economy on a local, regional, or national basis, with preference given to local or regional indices when they were available. Base information for all indices was obtained from the United States Department of Labor, Bureau of Labor Statistics. Salaries for all hospital employees were classified into nine general service categories, such as General and Administrative, Dietary, Housekeeping, etc. Each category was then divided into groups based on salary level, responsibility, and actual duties performed. The source documents for the salary and functions were the Hospital Administrative Salary Survey and the Hospital Salary Survey, both publications of the Hospital Council of Western Pennsylvania (HCWP).

Each of the groups of the nine major general service categories was weighted, based upon the percentage of the number of employees classified in each of these groups for all western Pennsylvania hospitals as determined by HCWP's Health Power Needs Survey. This survey lists the number of employees by position in seventeen different departments. The weight assigned to each salary category, which became a constant for all hospitals, is listed in Table 4. The weights were then multiplied by the average annual salary increases received in the past several years for nonhospital workers with comparable skills and responsibility.[1]

All expenses other than salary were grouped into six natural expense categories and then matched with selected indices. Each of these indices was then projected yearly to be included in the projected rates for the current year. These expense categories and related indices are:

Expense Category	Index
Physicians' Fees	Consumer Price Index - Professional Services Physicians' Fees (USA)
Food	Consumer Price Index - Food (Pittsburgh)
Drugs, Medical and Surgical Supplies	Wholesale Price Index - Drugs and Pharmaceuticals (USA)
Fuel, Utilities, and Telephone	Consumer Price Index - Fuel and Utilities (USA)
Maintenance of Personnel	Consumer Price Index - Housing (Pittsburgh)
Other	Wholesale Price Index - Industrial Commodities (USA)

[1]Hospital wage rates reached through collective bargaining are allowed if they represent increases that are higher than the external indices but commensurate with other bargaining agreements in hospitals.

TABLE 4: Percentage Wage Change for Selected Occupations (as a percentage of group total)

BCWP, PROSPECTIVE RATE EXPERIMENT PROGRAM			BUREAU OF LABOR STATISTICS		
General Service Category	Preliminary Weight	Group Weight	BLS Classification	Source	Average Annual Value Increase (1966-1970)
General and Administrative					
Group I - Management	50.0%		Attorneys VI	See Note 1	12.9%
	50.0%	5.6%	Chief Accountants IV	See Note 1	7.0%
Group II - Supervisors	33.3%		Directors of Personnel II	See Note 1	5.7%
	33.3%		Chief Accountants II	See Note 1	6.2%
	33.3%	20.2%	Buyers IV	See Note 1	5.4%
Group III - Other	1.4%		Engineering Technicians I	See Note 1	5.4%
	3.6%		Accountants II	See Note 1	7.1%
	15.1%		Accounting Clerks Class A	See Note 2	4.0%
	79.9%	74.2%	File Clerks Class B	See Note 2	5.5%
Dietary Service					
Professional - Manager		8.4%	Engineering Technicians IV	See Note 1	5.6%
Semi-Professional		18.5%	Draftsman Tracers	See Note 1	6.5%
Unskilled		73.1%	Unskilled Plant	See Note 3	4.7%
Housekeeping Service					
Professional - Manager		10.0%	Engineering Technicians III	See Note 1	5.2%[a]
Unskilled - Other		90.0%	Janitors, Porters, Cleaners	See Note 4	4.0%
Laundry Service					
Professional - Manager		11.2%	Engineering Technicians III	See Note 1	5.2%
Unskilled		88.8%	Unskilled Plant	See Note 3	4.7%
Other Service					
All other service employees		—	Order Fillers	See Note 5	4.8%[a]
Professional and Technical Services					
Professional - Manager		1.8%	Chemists V	See Note 1	5.6%
Professional - Specialist		30.2%	Attorneys I	See Note 1	11.9%
Professional		21.2%	Engineering Technicians II	See Note 1	5.2%
Semi-Professional		30.7%	Engineering Technicians II	See Note 1	5.8%
Unskilled		16.1%	Senior Stenographer	See Note 2	2.7%
Education - Nursing					
Professional - Manager		.8%	Attorneys I	See Note 1	11.9%
Professional		99.2%	Engineering Technicians V	See Note 1	5.4%
Nursing Services					
Professional - Manager		.4%	Attorneys II	See Note 1	10.7%
Professional - Specialist		1.7%	Engineering Technicians IV	See Note 1	5.6%
Professional		37.3%	Industrial Nurse RN	See Note 3	5.8%
Unskilled		60.6%	Craftsman Tracers	See Note 1	6.5%
Maintenance & Operation Of Plant Services			—		
All Employees		—	Skilled Plant		

Notes:

1. U.S. Department of Labor, Handbook of Labor Statistics, 1970 (Washington, D.C.: Bureau of Labor Statistics, Table 104), p. 212.
2. U.S. Department of Labor, Area Wage Survey: Pittsburgh, Pennsylvania Metropolitan Area (Washington, D.C.: Bureau of Labor Statistics, Table A-3), 1962-1970.
3. U.S. Department of Labor, Handbook of Labor Statistics, 1970 (Washington, D.C.: Bureau of Labor Statistics, Table 107), pp. 223, 219, 221.
4. Ibid., Table 108, p. 240.
5. Ibid., Table 108, p. 233.

[a]Average Annual Increase 1966-1969.

Source: BCWP, Prospective Rate Experiment.

Prior to June 30 of each year, the individual indices were projected statistically by the Blue Cross Actuary Department. This projection was then reviewed by the Blue Cross Reimbursement Programs Department. Prior to establishing final projections, the statistical projections were then adjusted for any unusual economic considerations. They were then reviewed monthly, and provision was made to adjust them for significant variances from actual at midyear (January 1). It should be noted that all hospitals under this program used a fiscal year ending on June 30.

2. Prospective-Year Operating Per Diem Rate Methodology

A hospital's current-year estimated per diem for each of the general service categories' salaries is obtained by dividing each category's total salaries by estimated inpatient days. A similar process is completed for the prospective year with budgeted salaries and inpatient days. The percentage change between the current and prospective per diem salaries for each general service category is then averaged with the percentage change in the BLS weights, and the combined average rate of change is the maximum allowable rate. If a hospital's projected rate of change is less than the combined average, its own rate of change becomes the rate by which current-year salaries are adjusted to the prospective year.

The same process is used to project the prospective year's per diem cost for nonsalary expense categories--employee health and welfare benefits, interns' and residents' costs, fees, food, drugs, fuel and utilities, maintenance of personnel, and other. The per diem costs are summed for all expense categories, including salaries, and the sum is then adjusted for outpatient costs and changes in the hospital's facilities and services to obtain an adjusted operating inpatient per diem. The percentage change between the current and prospective year is multiplied by the current-year operating per diem for non-Medicare patients to determine the prospective-year operating per diem rate for Blue Cross payments.

Determination of Prospective-Year Nonoperating Per Diem Rate without Building Depreciation. The process is very similar to that used to determine the base year's operating per diem cost. The base-year nonoperating per diem rate is determined by first adjusting total nonoperating expense without building depreciation for gain/loss on building disposal and outpatient costs associated with nonoperating expenses, and then dividing the result by total inpatient days. The per diem rate for Blue Cross payment is determined by subtracting the nonoperating inpatient expense allocated to Medicare, using the ratio of charges to charges applied to costs (RCCAC) to derive a non-Medicare nonoperating inpatient expense. Dividing the cost by the number of non-Medicare patient days gives the base-year nonoperating per diem rate for Blue Cross.

The rate of change in nonoperating average per diem between the base and current years is determined and then multiplied by the base-year non-operating per diem for Blue Cross to establish the Blue Cross level of per diem nonoperating costs in the current year. The methodology for the prospective year is the same. Once the nonoperating per diem cost for the prospective year has been determined, per diem depreciation and changes in facilities and services are added back. These changes are then added to the operating per diem rate to derive the hospital's total prospective per diem rate.

Rate Adjustments. The final prospective rate developed under this 1974-1976 voluntary program applied to all Blue Cross or Medicare days incurred during the prospective year. While it was recognized that certain circumstances could necessitate an adjustment to the rate during the year, the rate was not to be adjusted retrospectively. Adjustments to the prospective rate during the year were made for the following reasons:

- Index projections were reviewed monthly and adjusted for significant variances between projected and actual experience. When the cumulative effect of these variances made it necessary, the prospective rate was adjusted effective January 1 of the fiscal year ending June 30. The Social Security Administration was notified of such adjustments. If they did not agree, which never occurred, the matter was to be submitted to an Appeals Committee; and

- A request for review of the final prospective rate during the prospective year could be made by the hospital, Blue Cross, or the Social Security Administration as the result of any unplanned, extraordinary circumstances, such as a strike, fire, breakdowns, or major fluctuations in occupancy due to outside factors that occurred during the year. The primary basis used to determine if an adjustment was appropriate was whether or not the situation could have been planned for or controlled by the hospital.

Adjustments to the prospective rate resulting from any condition of the second category were made effective upon the date of notification of the situation necessitating the adjustment. This adjustment was contingent upon the agreement of the Social Security Administration and Blue Cross. If both parties could not agree upon the adjustment, or if the hospital was not satisfied with the adjustment, the matter was to be submitted to the Appeals Committee. Because a hospital could drop out of the 1974-1976 program if it did not agree to its original prospective rate, the appeals procedure would be, for practical purposes, limited to appeals on revisions to rates to which the hospital was formally committed. To date, no requests for formal appeals have been received from participating hospitals.

Adjustments, due to revisions in the index projections, were made continually for the years ending June 30, 1974 and 1975. The revised projections were developed by the Blue Cross Actuary Department, reviewed and approved by the Blue Cross Reimbursement Program Department and the Social Security Administration, and implemented effective January 1, 1974 and 1975. Since the revisions affected only those hospitals whose expense increases exceeded the maximum increase computed from the indices, these adjustments affected only four hospitals in 1974 and three hospitals in 1975 and amounted to an average increase of .06% in 1974 and .006% in 1975. No adjustment due to index revisions was made during fiscal 1976 since net changes in the individual indices resulted in an aggregate change that had even less effect on the original rates.

Requests for rate revisions due to so-called extraordinary situations could be divided into those that have had a significant effect on the Blue Cross or Medicare per diem and those that resulted in a significant decrease or increase in overall expenses or volume. As previously mentioned, the prospective rate formula generated specific Blue Cross and Medicare per diems. Due to the use of the RCCAC method, these rates were more dependent upon outpatient volume and the ratio of Medicare to non-Medicare volume in various departments than they were upon total cost or total volume (days). As changes in these factors occurred during the year, an overage or underage could be generated according to the effect of these changes on the actual Medicare and Blue Cross cost per day. It was therefore decided to adjust the individual prospective rates during the year as these ratios changed, in the belief that patient volume and type were beyond the control of the hospital administrator and thus should not have an impact on the PR program's incentives or penalties.

The need for adjustments to correct the above situation was not noted until larger and more diverse hospitals entered the program in fiscal years 1975 and 1976. This resulted in adjustments in five of the sixteen hospitals during FY 1976 for changes in Medicare payor volume. Over the three-year period the program was in effect, there were thirty-one Medicare adjustments; of these thirty-one, seventeen represented less than a five percent increase and only three exceeded a ten percent increase. Over this same period, there were thirty-five Blue Cross adjustments; twenty-one represented less than a five percent increase and only four exceeded ten percent.

Several other adjustments to original rates were made during the period this program was in effect for factors that, directly or indirectly, affected total expenses. Variances between budgeted and actual days were the most common cause for these types of adjustments. When variances in the volume of days exceeded five percent, the situation was considered out

of the control of hospital management; consequently, adjustments were made. Other factors that necessitated adjustments were the energy crisis caused by the OPEC oil embargo and the unexpected and unplanned surge in malpractice and liability insurance premiums during 1975-1976. A few adjustments were also made for unforeseen circumstances that occurred on a more selected basis, affecting only one or two hospitals. In addition, certain expense factors mandated by governmental agencies created the need for rate adjustments. Primary among these were increased pension costs arising from Employee Retirement Income Security Act (ERISA) provisions, unemployment compensation, and expenses incurred in meeting Occupational Safety and Health Administration (OSHA) regulations and rulings.

Rate revisions for unforeseen occurrences were more significant than for changes in the indices. In 1974, one hospital received a 0.3 percent rate increase two months prior to the end of its fiscal year because it justified a cost of living increase for its employees on the basis of a comparison of salary levels with other area hospitals. In 1975, nine of eleven hospitals received rate adjustments ranging between 0.3 percent and 12.6 percent. Six of the adjustments became effective for the second half of the fiscal year; the others were authorized for the last three to four months of the fiscal year. In 1976, eighteen out of twenty-one hospitals received rate adjustments between -3.2 percent and 24.4 percent. Two hospitals received two rate adjustments each. Four hospitals had both their Blue Cross and Medicare per diem rates reduced, while two others had their Blue Cross rate reduced but their Medicare rate increased, in one case up 21.4 percent. BCWP had the authority to make downward rate adjustments if these adjustments were found to be justified by the actual operating results. The downward rates resulted from favorable volume variances in days and departmental statistics as compared with the budget. In total, sixty-six rate revisions were made between 1974-1976.

The following list of those adjustments occurring more than once is indicative of the kinds of reasons adjustments were made to prospective rates due to events beyond the perceived control of hospitals. Some of them, however, were not outside the scope of management action. Hospital administrators should be aware of employee collective bargaining efforts and the likely cost of new contracts or the cost incurred to prevent unionization. It is interesting to note that two hospitals even received salary increases beyond those determined through the methodology so that they could attract employees.[1]

[1]BCWP believes that 1974-1976 was a time of much informal and formal union activity among western Pennsylvania hospitals. Faced with uncertain costs, BCWP encouraged hospitals to budget conservatively with the understanding that appropriate adjustments could be made later.

Summary of Most Frequent Rate Adjustment Activity

Reason for Rate Adjustments	Number of Times Used	Percentage of Rate Adjustment
Volume changes in days and departmental statistics	14	19
Malpractice and liability insurance premiums	11	15
Increased pension expense to meet future ERISA standards	6	8
Expenses incurred due to union organizing activity	6	8
Change in ratio of Medicare to total volume	5	7
Fuel and utility rate changes	3	4
Union contract settlements not known when budget prepared	2	3
Workmen's compensation increase	2	3
Salary increases to be competitive in area	2	3
		70%

Source: Blue Cross of Western Pennsylvania Prospective Reimbursement Formula Final Report for the Period July 1, 1973 through June 30, 1976, Exhibit VIII Summary of Rate Revisions, USDHEW/SSA/ORS, HEW Pub. No. (SSA) 77-11722.

Appeals. Because the voluntary nature of the PR experiments allowed a hospital to withdraw at the beginning of each fiscal year even after it knew its prospective rate, the appeals process has been essentially dormant. Two types of appeals are possible. The first allows a hospital to appeal budget adjustments, revisions, and/or its prospective rate for each participating third-party payor to the Budget Appeals Subcommittee of the Reimbursement Appeals Committee. The subcommittee is composed of three hospital representatives, one representative from each of the participating third-party payors, and one public representative to be named by the Reimbursement Appeals Committee. This subcommittee has never met. Instead, disagreements have been settled at a lower level, usually among the hospital, the program director, and his superior, the Vice President of Actuarial and Accounting Services. If a disagreement remains, representatives from the other third-party payors may be brought into the discussion.

The second type of appeal pertains to the reimbursement ceiling. The PR ceiling was twelve percent above the peer group weighted average per diem for all PR and non-PR hospitals in the group. These ceiling appeals were decided by the Reimbursement Appeals Committee (which included hospital, Blue Cross, and community representatives). Between 1974 and 1976, there were only two ceiling appeals on the Blue Cross rates and no appeals on the Medicare rates. If a Medicare ceiling had been appealed, a representative from SSA would have been added to the Committee. One hospital appealed its ceiling limit but was denied its appeal; the second hospital was granted

relief due to the fact that its cost per case was less than its group's average cost per case.[1]

Changes in Methodology Over 1974-1976 Period. Minor changes were made during this period and were designed to resolve problems encountered as larger and more diverse hospitals entered the program. Two methodological changes were initiated for FY 1975. The first revised the method used to calculate the annual percentage change in the inpatient per diem expense. Prior to 1975, the percentage change calculated included total (including outpatient) expenses; the method was changed to exclude outpatient expenses because of the rapid growth in outpatient costs and volume and the difficulty of forecasting outpatient volume accurately. The second revision developed a specific index to apply to employee health and welfare expenses. Prior to 1975, these expenses were included in salaries and wages; in 1975, they were controlled separately because of the large increases that were being incurred in the larger hospitals that were joining the program. The index was based on two factors. The first expressed employee benefits as a percentage of total salaries and wages of all workers in the private nonagricultural economy as published by the BLS. The second was the percentage increase in total allowable salaries, excluding physician salaries, from the current to the prospective year, as reported in the hospital budget. The projected change in the BLS factor was multiplied by the second factor, projected increase in salaries, to determine the employee health and welfare index.

Data Requirements. For the three audit years preceding the base year, data were obtained from the Blue Cross and Medicare audit files. The data included individual department expenses and revenues, general operating and nonoperating expenses, patient days, and bed size for all hospitals in each group (including non-PR hospitals). These data were used to compute the maximum allowable rate of change from the base year to the current year.

Base-year expense, revenue, and statistical information (including departmental utilization) were also obtained from the participating PR hospital's audit files. Comparable information for the current and projected year was obtained directly from the hospital. Current-year data were based on eight months' actual and four months' estimated results. If a hospital did not submit a current year's budget, the program staff extrapolated the actual data to a one-year period.

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[1] A special provision written into the BCWP reimbursement contract allows any hospital with a per diem cost above the ceiling to be reimbursed at a higher rate if the hospital's average cost per case was lower than the average cost per case for all other hospitals in its group. The higher rate was computed as the lesser of the average inpatient cost per case in the hospital's grouping or the hospital's own per diem cost. The major beneficiary of this cost per case exception has been the Magee-Women's Hospital, a hospital that specializes in obstetrics, gynecology, and neonatology.

Following the completion of each current and prospective year, actual allowable expenses, revenue, and statistics were collected and verified by field auditors and the analysts assigned to the hospital. This information was used to compute the PR ceiling. In addition to these data, nonhospital data were obtained from BLS, including the Handbook of Labor Statisics and the Area Wage Survey, and were used to project budget-year costs.

The 1977-1979 Program

Beginning in FY 1977, several important programmatic changes were initiated. The current program increased PR-affected volume by including Medicaid inpatient costs and Blue Cross and Medicare outpatient costs. BCWP now estimates that its PR program covers eighty-five percent of the hospitals' volume. The voluntary nature of the program also changed; hospitals voluntarily entered the program with the understanding that they were bound to remain in it until June 30, 1979 and that Blue Cross, Medicare, and Medicaid reimbursement would be based prospectively.

BCWP also revised its methodology to reduce the administrative burden engendered by the 1974-1976 program. One reason for the administrative burden was that the more complex hospitals required analysts to reclassify the cost breakout into the PR methodology's expense categories. The program calculated a prospective per diem rate for either Blue Cross or for both Blue Cross and Medicare, depending upon BCWP's agreement with the hospital. The 1974-1976 program also experienced significant administrative expenses to revise per diem rates during a year; each rate revision required an analyst to perform all the steps described previously. In addition, rates were revised whenever actual patient volume differed by at least five percent from budgeted volume. Nor was the volume change necessarily limited to total inpatient volume; departmental volume variance could also justify rate revisions, especially to the Medicare rate. Because the total Medicare per diem rate is a function of department costs allocated to Medicare patients, changes in the mix of Medicare/non-Medicare utilization in one or more departments could materially affect the per diem rate, and would therefore need to be revised.

The revised methodology for the current program established a prospective budget. For Blue Cross and Medicare, the prospective budget includes outpatient costs; Medicaid is limited to inpatients. A slightly different budget is established for each payor to account for differences in their allowable costs and accounting principles. While hospitals receive payment on a per diem basis, final results compare the final approved prospective budget with actual costs. Converting to a prospective budget from a prospective per diem system thus required methodological changes.

The two most notable changes are the use of the predictive cost model as a budget screen and the elimination of the need for calculation of a prospective rate using current and base-year information. These changes thus require budget analysts to carry out extensive analysis of the reasonableness of each hospital's budget.

The current program also improved upon one of the early program's incentives. The new program allows an additional five percentage points over the retrospective ceiling; hospitals can incur per diem costs fifteen percent above their group's weighted average. The other incentive, the ability to keep half of any savings between the actual and prospective budget, remains unchanged.[1] With these changes in incentives and methodology, twenty-one hospitals joined the program in FY 1977. No new hospitals enrolled in FY 1978. Two hospitals joined in FY 1979, the program's final year.

Many of the characteristics of the 1974-1976 program still apply. Hospital grouping systems, the appeals procedure, and the time frame for setting budgets have not changed. Data requirements are similar, although participating hospitals now submit capital and personnel budgets for the prospective year in addition to the data formerly required.

Operating costs are controlled using two tools: a predictive cost model to screen hospital budgets and extensive review of hospital budgets by the program's analysts. Occasionally BCWP's management engineers have been requested by the PR staff to study a hospital's operations with the objective of reducing costs. Each of these cost containment tools is discussed below.

Predictive Cost Model.[2] The current program's predictive cost model is essentially the one developed in 1971 by BCWP's research department in cooperation with consultants from the University of Pittsburgh's Department of Industrial Engineering.[3] The dependent variable is total operating costs. The independent variables are:

- Number of FTE hospital-based physicians providing medical services. (Administrative time is excluded from the FTE determination);

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[1]The penalty requiring hospitals to refund half the difference if actual costs exceeded prospective costs still applies as well.

[2]This model has been used since 1973 to calculate a hospital's reimbursement if the hospital selected predictive cost reimbursement. Only Westmoreland Hospital in 1974 selected this option. Although the hospital benefited from use of this reimbursement method, it did not select it again for reasons unknown at this time.

[3]They published a paper describing the predictive model in the June 1972 issue of Inquiry under the title "Predictive Hospital Reimbursement and Evaluation Model."

- number of board-certified physicians on active staff;
- number of board-eligible physicians on active staff;
- the hospital's nonroutine service index (explained below) and the index squared;
- the hospital's educational programs index and its square;
- nonroutine service index times educational programs index;
- percentage of outpatient charges to total charges;
- location (metropolitan Pittsburgh, urban, rural); and
- average daily census [(0-99)(100-199)(200-299)(300-449)(≥450)].

Data on these variables are collected from all ninety-nine hospitals in western Pennsylvania in an annual hospital survey, and the nonroutine service index is reviewed annually. Services are added or deleted according to their perceived ability to assess service differences among hospitals. The educational index is revised less frequently.

Although the model generates an R^2 greater than .95 and predicts the aggregate costs of all western Pennsylvania hospitals, it has severe limitations. Past increases in hospital costs and the systemwide efficiency or lack of it are accepted. Furthermore, the equation does not represent a model of the optimum cost relation between the independent and dependent variables, nor does BCWP use the model to identify relatively low-cost producers in order to encourage other hospitals to reach that lower cost level.

Procedure for Establishing the Predicted Cost. The predicted-year cost for a hospital is estimated from a model with coefficients obtained from data on all western Pennsylvania hospitals. Approximately 300 hospital years of data are used to estimate the model; all data pertain to the last three audited years. In 1979, total operating costs for 1975 to 1977 are the source data for the dependent variable; comparable years' independent variable data are also used.

In building a predictive model, it is necessary either to include time directly as an independent variable or to use a nonlinear (first difference) measurement of the dependent variable. The latter approach is used. To achieve parity in the measure of costs for the three years, a procedure is used to adjust the costs for each year of data so that the budget year is the base. To do this computation for each audited year, the average general operating cost per bed and average inpatient cost per patient day are

calculated. The percentage change of all western Pennsylvania hospitals between adjacent audited years is calculated for general operating cost per bed, inpatient cost per patient day, and total ancillary expenses. The total amount expended for a specific cost category is then multiplied by its percentage change to develop a total cost weighted average rate of change.

The cost data are then inflated to the prospective year. Because 1978 audited reports were not available at the time 1979 predicted costs were estimated, the 1978 inflation was based on the average inflation from 1975 to 1977. Current-year (e.g., 1978) costs are adjusted to the prospective year using BLS indices for nonhospital categories corresponding to hospital expenses.

In order to project average industry costs for the prospective year, BLS indices are used to estimate inflation in salary and noncompensation costs. To measure salary costs, hospital employees are grouped into classifications reflecting skill level and managerial responsibility. The percentage of employees in each hospital classification is multiplied by the BLS salary index and summed to yield the composite salary index. A similar methodology is used for forecasting inflation in noncompensation items such as drugs, utilities, etc. This mechanical adjustment process creates values for the dependent variable (changes in total operating cost) which are stated in budget-year dollars.

The Independent Variables. The measurement of noncost variables, such as hospital size, location, and medical staff level, is straightforward; however, the measures of service and education indices are not and have been developed with psychometric techniques. The model includes services associated with nonroutine specialized procedures that result in cost differences across hospitals. A psychometric weighting scale was constructed based upon subjective estimates obtained from administrators, physicians, and controllers. The constant sum technique[1] was employed to convert the raters' estimates into a set of weights. The services were divided into three groups, and all possible pairs within the groups were determined and randomized. The raters then estimated the effect on cost between the two items in each comparison. They were told that the distribution of points should reflect the relative total effect on cost for providing one service as compared to the other. Total effect on cost was to include direct and indirect costs as well as the cost of all other hospital functions that may be affected by the specific service. A value for the service variable at each hospital was obtained by summing the resultant psychometric weights for the services provided at each institution. This value was an indicator of the total effect of nonroutine services on hospital cost. A similar technique combined educational data into

[1]See J.P. Guilford,, Psychometric Methods (New York: McGraw-Hill, 1954).

an index representative of hospital teaching activities. Factors included in the education index were medical residency and internship programs, schools for registered nurses and LPNs, and the various technical schools.

The importance of the indices to the model led to annual reviews of both indices. The weighting scheme for the educational index developed in January 1972 was revised in March 1976, and additions and deletions to the service index were made regularly through 1976. Since then, the nonroutine service volumes used as a weighting factor in computing the service index have been revised.

The Predicted Model as a Screen. The predicted cost model is used as a screen to determine the reasonableness of a hospital's operating budget. If the hospital's projected operating budget is within five percent of the costs predicted by the model, the hospital's budget is accepted as reasonable; if the budget falls outside the five percent range, the projected operating budget is further reviewed. The review looks at changes in occupancy, departmental utilization, facilities and services, abnormal expenses, and items not incorporated into the model's base years' data. The model is then rerun using the updated information. If the projected budget is still outside five percent of the costs predicted by the model, the staff will subject the budget to a more intensive review. If new data do not surface to explain the discrepancy, the prospective budget is established at the level most favorable to the program unless a hospital can justify a different level. Projections are reviewed halfway through the fiscal year and, if significant variances are noted between actual and projected data, adjustments to the hospital operating budget can be made at the program's or the hospital's initiative.

Hospitals do not know the costs predicted by the model and, for the 1978 and 1979 fiscal years, the budget analysts also did not know the predicted costs. The procedure of not informing budget analysts was instituted because it was found in 1977 that they tended to use the predicted cost as a target for the prospective budget, and a more rigorous budget review could have lowered the prospective budget. The procedural change places a much greater emphasis on the detailed review of each hospital's budget. Today, the predicted model is mainly a check on whether the hospitals' projected operating budgets determined to be reasonable by the budget analysts are, in fact, reasonable.

Detailed Budget Review Procedure. The costs predicted by this model are used as a screen for comparison with the hospital budgets reviewed by the program analysts. The review process not only involves the current and projected budgets submitted by each hospital but also an assessment of their reasonableness based on historic actual data for the hospital and other similar hospitals.

The analysts work with three thorough budgets submitted by each PR hospital. The operating budget details cost, revenue, and statistics by department and payors. The capital budget compiles the hospital's present property, plant and equipment, and the acquisitions by type and department for the projected year. The personnel budget is not a cost budget; it details the hours of personnel allocated to different departments by job title. The budget forms, unfortunately, do not always produce uniform reporting, and the absence of uniform accounting standards gives the hospital some flexibility in defining and allocating costs.

The analysts follow guidelines that specify the methodology for reviewing the reasonableness of specific budgeted expenditures. The methodology relies on trend analyses, and analysts are given flexibility in their interpretation. After a hospital's prospective budget for Blue Cross is established, the budgets for Medicare and Medicaid are determined by applying their respective cost principles (which define allowable costs for reimbursement purposes) to the hospital's projected operating budget.

The essence of the budget review process is to establish a prospective budget by comparing it with the hospital's most recent audited costs and its estimated/actual current year's costs. The first step in the process is to compile the base year's (most recent audited year) costs by expense category by department. Each departmental expense breakout is by salaries of major job titles; expenses for physician fees, interns, and residents; employee health and welfare; and other (e.g., drugs, food, fuel, utilities, etc.). The second step is to reclassify expenses if the hospital's classification differs from Blue Cross guidelines (e.g., to reclassify workmen's compensation from Administration to Employees Health and Welfare). The third step is to prepare a summary of credits to expenses which deducts revenue from rebates, purchase discounts, telephone service, etc. from appropriate departmental expenditures. The reclassifications and credit to expense adjustments are then listed on a summary worksheet.

The process is repeated for both the current and prospective years. The analyst then compares the change in department costs from the base to projected year. If any costs appear out of line, based on the analyst's knowledge of the hospital's operation, the budget analyst seeks an explanation from the hospital and notes the explanation on the worksheets.

Hospitals will not receive adjustments or even reimbursement if they fail to disclose budget assumptions or changes in operations. If BCWP disagrees with the assumptions, then the budgets are approved subject to the assumptions being met. If the assumptions are not met, BCWP may revise the initially approved budget.

The budget is then reviewed by the analyst with the supervisor. Contacts with the hospital continue until the Director and his staff are satisfied

that the prospective year's budget is reasonable. This process is not cumbersome since the hospital's current-year expenditures are fairly well known due to the fact that Blue Cross conducts quarterly reviews, which inform it of the reasons for significant cost variations between the base and current years.

The final budget may be less than the predicted cost determined by the model. If the budget is more than five percent above the predicted cost, negotiations continue until the budget meets the screen or the hospital decides to appeal its budget. The controlled amount is total operating cost, which, for ease of payment, is converted into an interim per diem inpatient rate and an interim outpatient percentage of charges.

The amount of time required to review the prospective budget can range from one week to several months, depending on the problems encountered. Hospitals are required to submit budgets on uniform budget forms following approval from their boards of directors. The budget submissions often include explanations of the rationale behind significant items.

A retroactive adjustment can be obtained by hospitals experiencing cost changes of more than two percent due to the decrease in the average LOS (without corresponding decrease in patient days). However, the budget analysts will review utilization in ancillary departments and special care units to ascertain that the decreased LOS does not represent a basic change in case mix or patient care.

Hospital Management Studies. Occasionally, the Reimbursement Programs Department will mandate (with hospital concurrence) that BCWP's Performance Analysis and Review (PAR) Program staff investigate the efficiency of a hospital department. Only two hospitals have ever been subject to this provision. In FY 1978, the PAR staff conducted studies of the clinical laboratory and radiology departments at Brookville Hospital and an overview of all departments at Podiatry Hospital. PAR recommended to the Reimbursement Program's staff that Brookville Hospital could save $8700 in pathology and did not need to hire another x-ray technician. The magnitude of cost avoidance at Podiatry Hospital was much greater; PAR felt that planned costs of $156,000 could be avoided without reducing personnel. The PR staff took account of these recommendations in determining the allowed prospective budgets for these two hospitals.

Program Cost

Although the cost to Blue Cross for its Reimbursement Programs Department cannot be ascertained exactly, an estimate can be made based on data from the last quarter of 1976. These estimates should be considered as only a rough order of magnitude. From the yearly estimates shown in Table 5, the estimated cost of administering and developing the 1974 to 1976 program totaled $411,068; the estimated cost of the 1977 to 1979 program is $1,310,886.

INTERACTIONS

BCWP, in its role as the dominant health insuror in the twenty-nine counties comprising its service area, interacts with other third-party payors, state and federal government agencies, health planning agencies, state and local hospital associations, and other institutions primarily concerned with the delivery and financing of health care. Many of these contacts do not directly affect hospital reimbursement. Of those that do, very few are directly related to the prospective reimbursement program. This section concentrates on the influence of these outside institutions on reimbursement issues, particularly prospective reimbursement.

Because Health Care Financing Administration (HCFA) funds much of the development effort, it monitors the program's progress through periodic and annual reports. In addition to funding the program, HCFA was instrumental in getting Medicare to grant a waiver from the routine cost ceiling for participating hospitals.

Although Medicare has participated in the PR program since July 1973 and Medicaid since July 1977, neither plays an active role in program implementation. Medicare has recently become more active in the budget function. Prior to 1979, both Medicare and Medicaid accepted the budgets developed by the Blue Cross staff as long as they met the appropriate third-party reimbursement and audit principles.

Medicaid plays a very limited role. Approximately one million citizens in Pennsylvania receive medical assistance under the state's Medicaid program, forty percent of whom are in Philadelphia. Because less than ten percent of the state's short-term hospitals participate in the PR program, the program is a low priority for receiving staff time, which is not likely to increase.

While Medicaid considers hospital cost containment a problem, the impact that the benefit structure has on program costs is considered a much larger problem. Since September 1976, restriction on hospital usage by Medicaid recipients has been liberalized to the point where there are currently no limitations. Prior to that date, a Medicaid patient could not be in a hospital for more than sixty days within any 120-day period. Also, a sixty-day waiting period was necessary before beginning a new sixty-day benefit period. Hospital claims have risen since the liberalized policy was instituted, but not to the extent of some other benefits. For example, prior to July 1976, Medicaid would pay claims for services such as medical supplies and orthopedic shoes only if the provider had sought approval from Medicaid prior to providing the service to the Medicaid consumer. With less approval now required, the result in some cases has been rapidly escalating expenditures.[1]

[1]An example serves to illustrate the point: Medicaid paid $600,000 for orthopedic shoes in FY 1976, $2 million in FY 1977, and $7 million in FY 1978.

TABLE 5: Estimated Cost of BCWP'S Prospective Reimbursement Department, 1974-1979

Year	1974	1975	1976	1977	1978	1979
Estimated number of employees	5	6	7	12	15	14
Estimated salary	$63,900	$83,712	$104,750	$193,937	$267,815	$263,910
Fringe benefits 16%; 1974-1976 22%; 1977-1979	10,224	13,394	16,760	42,666	57,600	58,060
Overhead 12.2%	9,043	11,847	14,824	28,866	38,969	39,280
Miscellaneous	25,202	27,572	29,840	136,514	114,151	75,118
Total	$108,369	$136,525	$166,174	$401,983	$478,535	$436,368

Note: An assumption is made that the average salary follows the trend in the consumer price index. Costs for 1974-1976 assume that administrative and development costs were 85 percent of the reported contract cost of $483,609. The remaining 15 percent was assumed to cover the costs incurred by BCWP in evaluating the program.

Costs for 1977-1979 are based on the amount paid by Medicare, Medicaid, and Blue Cross between September 1976 and July 1979 for the prospective reimbursement program.

Rapidly inflating costs, coupled with the switch to cost based reimbursement for nursing homes, are thought to be the major factors contributing to the $150 million deficit now confronting the state. When the Department of Public Welfare realized its financial straits in 1978, it tried to institute controls on provider costs, including hospitals. The attempt failed because it did not receive federal approval, and the Department lost a court suit brought by the Hospital Association of Pennsylvania on the proposed controls.

The Department has instituted some controls over the years to alleviate the problem. One control, however, may result in increased costs if hospitals admit a patient who could have been treated as an outpatient. Hospitals are encouraged to admit questionable patients because Medicaid has been paying only $12 for an OPD or emergency room (ER) visit to a hospital with an ER open twenty-four hours per day ($6 per visit otherwise).

Once a patient has been admitted, however, Medicaid pursues utilization review (UR) to contain unnecessary hospital days. Medicaid has required hospitals to have active UR committees since 1968. In 1971, the state instituted 100 percent retrospective review of every claim. Prior to that time, Medicaid's fiscal agents were responsible for auditing claims. Medical records are requested on all questionable cases. With a shortage of medical record reviewers, contested claims take a long time to be settled. To ease the financial burden on hospitals, Medicaid began phasing in predischarge UR in 1974 in sixteen hospitals in the Pittsburgh area, and concurrent UR was mandated in October 1974 for all Medicaid patients. Since 1975, the state has slowly turned over its UR activities to fully functioning PSROs. In 1975, three out of twelve PSROs took over Medicaid's UR duties. Today hospitals in two counties near Philadelphia still undergo Medicaid rather than PSRO utilization review.

In closing this discussion of the influence of Pennsylvania's Medicaid program on hospital costs, two additional points should be noted. Between 1967 and September 27, 1976, there was no change in eligibility income limits; since then, income limits, which have increased annually, have been based on semiannual rather than annual earnings. Compared with the former eligibility requirements, smaller families have higher income limits than do larger families. Increased eligibility should increase Medicaid hospital utilization, which, in turn, may influence hospital response.

Perhaps BCWP interacts more with the Hospital Council of Western Pennsylvania (HCWP) than with any other organization; it represents and is the spokesman for the ninety-nine hospitals in western Pennsylvania. For a period of time prior to 1976, when the Hospital Association of Pennsylvania (HAP) hired its current President, minor territorial battles took place between the two organizations. Now, HAP concentrates its activities at the state level, and HCWP is the sole association for the western Pennsylvania hospitals.

The relationship between BCWP and HCWP is a cooperative one, and data are shared. BCWP, through a $50,000 interest-free loan, assisted the Association in establishing a group purchasing program that is reported to be saving $4 million annually. In the same manner, BCWP lent money to the Association for development of a Council-run credit and collections system. The extent of cooperation between the two organizations is best reflected in the following passage from a BCWP pamphlet on cost containment.

> Corporate personnel work extensively with the local Hospital Council. Our cost reimbursement contract with hospitals is jointly administered through Council's Third-Party Payor Committee and its eight standing subcommittees whose work is related solely to contractual functions.
>
> The Plan's Medical Affairs Department is represented on Council's Professional Care Committee, and the Provider Reimbursement Department participates in the activities of the Council's Financial Management Committee. The Plan's Provider Affairs representatives regularly attend Council's Hospital Administrators' Forums, and Plan executives use this vehicle to discuss pertinent subjects with a broad cross-section of hospital administrative personnel.
>
> Plan and Council executives regularly meet formally and informally to discuss timely subjects and mutual problems, and to formulate plans on such matters as public education regarding hospital costs, new utilization review procedures, capital need studies, and cost containment activities.
>
> In all of this work with the Council, Plan personnel try to make sure that their input in terms of cost control is heard, understood, and appropriate.[1]

The two organizations are currently working together to implement the voluntary guidelines suggested by the American Hospital Association; each state is responsible for designing and implementing its program. The President of BCWP is on the state committee organized by the Hospital Association of Pennsylvania to implement the voluntary program. BCWP executives staff regional committees in northwest and southwest Pennsylvania to review hospitals' total expenditure budgets submitted under the AHA voluntary cost containment program. The program's goal is to decrease a hospital's inflation rate to twelve percent if it was above that in 1977,

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[1]H.W. Gindele, Cost Containment, a Product of Commitment and Cooperation (Blue Cross of Western Pennsylvania, September 1976), pp. 8-9.

and to decrease a hospital's inflation rate by two percent if its rate had been less than twelve percent. If a hospital's budget does not meet the guideline, it is asked to justify the excess or else cut its budget. Both organizations feel that the program is working because hospital inflation during the first nine months of 1978 ran three percent lower than in 1977. The program's 1979 goal is to decrease fiscal 1979 inflation to 12.4 percent for hospitals that in 1978 experienced inflation greater than 14.4 percent; hospitals that experienced lower inflation in 1978 are expected to cut their inflation an additional two percentage points in 1979.

Probably the most important function the Association performs is to represent the hospitals in drawing up a uniform reimbursement contract with Blue Cross. At the time of the 1973 contract, the Association did not encourage the hospitals to select the prospective reimbursement option, and only five hospitals did so initially. In 1976, the Council strongly supported the PR program since they felt it represented the future reimbursement trend and the Blue Cross program was a good one in which to gain experience. Twenty-one hospitals joined. According to the Council, participating hospitals show generally strong support for the PR program.

The Council is pleased with the program and claims that its most important result is the upgrading of the budget process within participating hospitals. A second strength is the heightening of awareness of the need for cost containment. The Council, however, is seeking in its current contract negotiations with Blue Cross to increase the PR incentives and minimize its penalties. The Council feels that the current savings are too small to be a strong incentive for a hospital. Between 1974 and 1977, hospitals received a total of $698,000 in Blue Cross incentives and $123,000 in Medicare incentives. These incentives, which are net after penalties, amount to about 0.3 percent of total reimbursable expenses. The Association wants to increase the incentives so that more hospitals join the program and to eliminate the reimbursement ceiling, which is fifteen percent above a hospital's group weighted average cost. It does not believe that a hospital that has had its budget reviewed and approved by one or more third-party payors should be subject to a group ceiling penalty, since the hospital is already subject to financial penalties if it exceeds its prospective budget.

The connection between BCWP and the Association dates back to the formation of BCWP in 1937 and is encouraged by the regulations under which it operates. The Pennsylvania legislature created Blue Cross as a nonprofit, tax-exempt corporation because it supported public policy. The public interest in question was the creation of prepaid hospital care to ensure that ill patients were not discouraged from undergoing hospitalization because of an inability to pay a large hospital bill. At the same time, hospitals remained financially viable by being assured payment for services rendered. The Pennsylvania Insurance Department directed that "Each Blue Cross Plan. . . shall. . .solicit the assistance and cooperation of the hospitals served

by them, hospital councils, and other interested persons, in exploring all areas of hospital administration, to determine where economies can be made."

The Insurance Department regulates Blue Cross premiums and approves the reimbursement contract drawn up by BCWP and the Association. In 1958, the Insurance Commissioner took action that required hospitals to have their outpatient services reimbursed at cost by Blue Cross by July 1, 1970 or earlier. BCWP and the hospitals instituted this policy in their 1966 reimbursement contract. Since then, the Department has encouraged experimentation.

Another influence on hospital behavior is the Insurance Department's guidance standards (issued in 1976) for review and approval of a hospital's risk management plan. All hospitals must have a medical staff disciplinary program, a medical staff privileges sanction program, a program of procedural competency, an outcome analysis program, and a safety program. If a hospital does not follow the guidelines, the Pennsylvania Hospital Insurance Company, which is the liability insuror for most hospitals, may revoke the hospital's policy. The hospital's insurance premium would then increase dramatically. The Insurance Department feels that this guideline has raised the quality of care and has helped decrease hospital admissions. Even if these results have been achieved, only strong enforcement of the guidelines, including the cancellation of insurance policies, would be evidence of a strong causal connection.

The Insurance Department's somewhat negative outlook concerning PR contrasts to that of the former Pennsylvania Health Commissioner, Dr. Bachman. While he is not sure that PR will lower costs, he was the motivating force behind Medicaid participation in BCWP's program. Dr. Bachman believes that the state should at least learn the techniques of prospective reimbursement. He believes in rate regulation but does not foresee it in the entire state of Pennsylvania for at least two years. The state's past efforts have been fruitless; no important interest group came out in support of rate regulation, and organized labor wanted negotiated wages to be treated as a passthrough. Blue Cross plans did not want uniform reimbursement rates for all payors, and Dr. Bachman feels that the state erred in adopting the philosophy that all payors be treated equally; a better approach would have been to control only Medicaid reimbursement rates. Once the controls became tight enough, hospitals would have been more willing to subject themselves to an independent rate regulatory authority that controls all hospital reimbursement.

In terms of health planning, the Health Department has tried to put a ceiling on capital expenditures through its Section 1122 review power. The state does not yet have CON, but Dr. Bachman feels that the state has accomplished as much with 1122 as it would have if it had CON legislation. The cost of acute care hospitalization is a high priority item that is

being addressed in the state's health plan. A draft of the plan is being prepared, with approval expected in the spring. Health planning at the state and local levels has not interfered with Blue Cross reimbursement practices.

BCWP supports the health planning concept, but is skeptical of its capabilities and power. However, it encourages its employees to become active in their local HSA so that they can provide expertise and be aware of the status of planning activities that can affect hospitals. BCWP will review and comment upon draft health system plans and also participate in individual project review. At times, BCWP may try to get the hospital to scale down a project if it feels that a project is excessive or won't pass the local HSA. Blue Cross also expects planners to reduce the per capita number of hospital beds, believing that they must address the excess capacity issue through Section 1122 and through a limit on the amount of tax-free, low-interest bonds available for hospital capital building needs. The planners are the first hurdle a hospital must pass in order to obtain approval for capital expansion or renovation. Until 1978, health planners may have stopped, delayed, or cut back on capital projects, but the indications are that any such action has had a limited effect. Hospitals have been upgrading their facilities at a staggering rate. The dollar value of approved and projected hospital construction in western Pennsylvania between 1976 and 1981 is above $600 million, which is more than the value of physical assets net of depreciation for all hospitals in the area in 1975. Debt service is now a major expense item affecting operating costs.

Because BCWP is headquartered in Allegheny County, its strongest relationship is with the HSA of southwestern Pennsylvania, the largest HSA in western Pennsylvania, covering Pittsburgh, its suburbs, and the southwestern portion of the state. A Blue Cross vice president sits on the HSA board, and other Blue Cross employees sit on subarea councils. A close working relationship exists between this HSA and BCWP. Three other HSAs serve western Pennsylvania. The HSA of northwestern Pennsylvania comprises ten counties, and a Blue Cross representative attends board meetings at the HSA's request. BCWP is trying to develop a better working relationship with the Altoona area HSA, which is thought not to work well with providers and has not sought advice from Blue Cross to the degree that other HSAs have. The Lewisburg HSA overlaps two counties served by BCWP and maintains a good relationship with Blue Cross concerning issues affecting those two counties.

The HSA in southwestern Pennslyvania is reputed to be the most advanced in the region; it is in the third generation of planning. Allegheny County had a health planning association in the early 1960s that contained influential corporate representatives. Area hospitals, therefore, have been subject to some type of health planning for almost twenty years. Although the effectiveness of local health planning agencies and HSAs is in doubt, health planning has probably contributed to some voluntary resource allocation among hospitals.

An example of resource reallocation concerns obstetric beds. The HSA of southwestern Pennsylvania has developed service norms for obstetric beds, and these norms and low utilization have caused some hospitals to close their obstetric units. More hospitals are likely to follow suit because the HSA has given local hospital consortia the responsibility of allocating obstetric beds among their hospitals.[1] The ability of these consortia to work with the HSA may be an important ingredient of successful planning.

BCWP does not explicitly involve itself with the appropriateness of service. Rather, it sees itself as a payor who complies with planning decisions. The cordial relationship it enjoys with hospitals would be at risk if it advocated service preferences of one or more hospitals over others. A modus vivendi appears to exist: Blue Cross maintains a cautious approach towards health planning, particularly appropriateness of services; health planners maintain a cautious approach towards hospital finance, particularly reimbursement.

The PSROs also do not interact with BCWP on hospital reimbursement issues, although both are concerned with utilization review. The effectiveness of UR is not currently known, as length of stay is about the same across the state (see Figure 1). Worth noting, however, is a joint program between BCWP and the Allegheny County PSRO through which the PSRO conducts UR on Blue Cross patients in eight hospitals. The program began on October 1, 1978, in three hospitals: Allegheny Valley, St. Francis General, and Sewickley Valley. In November, three more hospitals were added: Magee-Women's, Ohio Valley, and Shadyside; the remaining hospitals, Presbyterian University and Western Pennsylvania, joined in December. Only Magee-Women's is in the prospective reimbursement program.

BCWP does not interact with hospital unions. In spite of the presence of two large industrial unions, the steelworkers' and the mineworkers' unions, hospital workers are not heavily unionized. Western Pennsylvania is reputed to be the toughest area in Pennsylvania for unions to organize hospital workers; only about twenty-five percent of the hospitals in western Pennsylvania are unionized to any extent.

Nine of the thirty-two hospitals that have been in the PR program for at least one year since 1972 had collective bargaining agreements in effect during the time that they accepted prospective reimbursement. Service and

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[1]Consortia act to coordinate planning within a geographic area. There are four hospital consortia in Allegheny County, which have been in existence for about ten years. Recently, four hospitals in Johnstown (Cambria County) formed a consortium in which the hospital administrators, members of the boards of directors, and heads of the medical staff meet regularly to identify community needs and to decide on resource allocation among the hospitals.

maintenance workers are represented jointly in seven of the hospitals, registered nurses in three hospitals, licensed practical nurses in two hospitals; maintenance employees were represented separately in two hospitals, security guards in one hospital, and clerical workers in one hospital.

Union gains, especially since passage of the 1975 law allowing public employees to organize for collective bargaining, have been made mainly in government-controlled hospitals. The lack of organized labor is one of many factors that contributes to the lower cost per patient day and per case for SMSA hospitals in western Pennsylvania as compared with SMSA hospitals in the rest of the state (see Figure 2).

Also contributing to the lower cost is the relatively high percentage of diploma school nursing graduates that practice in the state. The Pennsylvania Nurses' Association (PNA) mentioned that the state has fifty diploma schools (the most of any state in the country), which, added to the associate and college-trained nurses in the state, enables Pennsylvania not only to meet its own nursing requirements but also to export nurses to other states; Pennsylvania supplies nine percent of the nurses in the country. The PNA feels that this condition has served to hold down nursing wages in Pennsylvania, compared with neighboring states. Within Pennsylvania, the PNA believes that nursing wages in the Pittsburgh metropolitan area are lower than in Philadelphia or even many rural areas due to the lack of hospitals with collective bargaining agreements. Collective bargaining has had a negligible effect on the structure of BCWP's PR program, and vice versa. The PR program has essentially treated labor agreements as passthroughs even if they exceed forecasted salary increases. Consequently, union-hospital bargaining has not been materially affected by PR.

SUMMARY OF BCWP PROSPECTIVE REIMBURSEMENT PERFORMANCE: A PRELIMINARY ASSESSMENT OF PROGRAM RIGOR, INCENTIVES AND EQUITY

In order for a program of reimbursement control to be effective, it must succeed on each of several fronts. First, it must reduce reimbursement to a level below what it might have been in the absence of the program. This performance indicator can be called program rigor. Second, the program should be equitable, which means that identical institutions should be reimbursed similarly and that meaningful peculiarities in institutions should be fairly acknowledged. Finally, the program should be efficient; in other words, the administrative and institutional compliance costs of the program should be less than the resource savings attributable to the reimbursement controls. These broad program objectives are not entirely independent, nor are they necessarily mutually compatible.

It is impossible to track the performance of the BCWP program on these three performance criteria on the basis of the purely qualitative inspection completed to date. It is possible, however, to evaluate the

incentives embedded in the BCWP PR system and to offer some hypotheses about the relationship between these incentives and administrative arrangements and the rigor, efficiency, and equity of that system.

Program Rigor

There appear to be incentives within the BCWP program that indicate, on an *a priori* basis, a compromise of short-term cost containment rigor to maintain its cooperative relationship with hospitals. The budget review methodology, risk sharing, frequent adjustments, and the absence of linkages with other complementary cost containment efforts all contribute to this preliminary assessment.

Although there is some possibility that the program may have been successful in containing reimbursement for participants, there is certainly cause for questioning the likelihood that institutions will participate voluntarily in any activity that might impose serious financial pressure. Only since FY 1977 have participating hospitals been required to remain in the program; between FYs 1974 and 1976, hospitals could drop out of the PR program if they felt their reimbursement rate was too low. Institutions can, of course, make errors in judgment or choose to risk some loss in reimbursement in order to gain experience with rate regulation, but the history of prospective reimbursement programs sponsored by BCWP suggests that hospitals were cognizant of the likely financial impact before they made the decision to participate.[1]

These suspicions of weak cost containment incentives in the BCWP program are, of course, applicable to all voluntary programs. Indeed, the question arises as to what motivates any hospital to participate in a voluntary system. In the case of BCWP, the incentive to participate probably stems from three sources. First, many hospitals throughout the nation are nervous about mandatory federal regulation; this anxiety has spawned both programs and voluntary participation in such programs as a hedge--the lesser of two evils. Second, BCWP offers potential financial encouragement to participate. Finally, and perhaps most important, hospitals may realize that BCWP will be devoting considerable expert resources to the scrutiny of the hospital's operations, management, and financial status, and this "service" may offset any apprehension posed by belt tightening.

For many years prior to PR, hospitals faced a cap on retrospective Blue Cross *per diems*, which was set at ten percent above the mean of hospitals in the same group. In the early PR period (1972-76), the participating

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[1]In 1977, the program resulted in Medicare incentives exceeding penalties by $231,000 and Blue Cross incentives exceeding penalties by $226,000. The average total incentive per hospital was $22,000 or a little less than one percent of an average hospital's budget. This percentage is higher than occurred in the earlier 1974-1976 program.

hospitals were given a contract that allowed a twelve percent corridor (instead of ten percent) for Blue Cross reimbursement. This inducement was raised to fifteen percent with the 1977 program, and Medicaid was included under the same cap. In 1974, the Section 223 routine inpatient ceiling for Medicare was waived for participating hospitals and replaced by a twelve percent corridor. These changes liberalized the Blue Cross reimbursement ceiling for participants, changed the Medicare ceiling to one on total inpatient costs instead of routine costs, and imposed a Medicaid ceiling. BCWP believes the twelve or fifteen percent corridor on total Medicare reimbursement is more constraining than Section 223 constraints and, along with the Medicaid ceiling, has discouraged hospitals from participating in the PR program. To determine whether BCWP's mixture of reimbursement incentives and disincentives helps contain hospital costs requires statistical analysis of quantitative data. Yet the fact that the number of participating hospitals grew over the period from 1972 to 1979 suggests the reasonable hypothesis that the financial inducements to attract hospitals compromised the program's rigor.

For participating hospitals, the rigor of the BCWP program is governed by the toughness of the budget scrutiny and approval process. Budgets are reviewed on a departmental level using selected hospitals as a guide for "reasonableness."

After the analyst and the supervisor complete their review, the resulting budget is compared to the results of the predictive model of costs for western Pennsylvania hospitals. A five percent corridor around the model's predicted costs is the screen for further scrutiny. This process is coupled with negotiation between the analyst, supervising analyst, and the hospital. Therefore, it is difficult to assess the rigor of the process. Certainly, a careful budget review and analytic model should remove or at least modify extreme budget elements.

Several specific aspects of the process of making interim adjustments have impications for rigor. Adjustments are allowed for mistakes in projecting rates of inflation for inputs and for other extraordinary items. More importantly, in terms of incentives, wage settlements are passed through as budget adjustments. The incentives to contain costs are probably weakened by such liberal adjustment policies.

One indicator of the rigor of this review is the frequency of appeals; to date, no hospital has appealed the authorized buget. The ongoing negotiation process has been sufficient to compromise matters of dispute--possibly an indication of a less constraining system than might be optimal.

The manner in which risk is shared is also contributory to the cost containment potential or rigor of the BCWP system. The hospital and BCWP share upside and downside risks equally; i.e., half of any savings are accrued by the hospital and half of any overages are absorbed by the hospital.

Certainly the hospital is at risk, but the incentives could be stronger, with hospitals bearing full risk.

Compliance incentives are vital to the rigor of the system. In BCWP, these incentives are provided by accounting for the hospital's share of shortfalls or surpluses in subsequent-year budgets and the interim per diems paid during that year on the basis of that budget. This system provides an incentive to err on the side of overspending in the current year (as opposed to underspending) in order to increase cash flow.

Finally, two incentives in the system are favorable to cost containment. Quarterly reviews of performance are made to identify volume and other variances from the planned budget and to make necessary adjustments in the interim per diem payments. The second beneficial aspect of the BCWP program is its use of management engineers; while most PR systems place limits on budgets based on group norms but leave the institution groping for solutions, BCWP's management engineering services can give program analysts some idea of the reasonableness of budget modifications and can give hospitals some strategies for saving resources. This practice of offering help to hospitals seems a vital complement to any reimbursement control program that is to be truly effective in trimming costs without unduly constraining services and quality of care.

A final comment on rigor concerns the organizational locus of the reimbursement program. Some contend that a program sponsored by Blue Cross, who must contract with hospitals, cannot be as tough as one run by an external (state) entity. Certainly the conventional form of public utility regulation is an example of the regulator who is not (unless captured) a participant in the industry itself, and certainly Blue Cross is an industry participant. This may not be detrimental to rigor, however. Blue Cross competes intensely with commercial insurors, largely on the basis of premiums. It has a strong organizational survival incentive to contain premium increases by containing hospital costs (at least Blue Cross costs). The public regulator, on the other hand, finds the incentive for cost containment not born of business objectives but, instead, born of a probably less compelling goal of community service.

Equity

Equity must exist in two forms for a program of reimbursement control to be palatable to all participating hospitals. First, it must treat equals equally. Second, it must provide recognition for justifiable peculiarities.[1]

[1]It is this objective that often creates a perceived conflict between equity and rigor. Certainly all peculiarities should not be reflected in reimbursement rates. For example, institutions that are unique in terms of being wasteful, have a plethora of underutilized services, or are unnecessarily overstaffed or overcapitalized should not be granted special treatment.

The BCWP program provides for both forms of equity by means of grouping methodologies, a hospital-specific predictive cost screen, and negotiation.

As mentioned previously, hospitals are grouped according to one of two methods. One method is based on teaching status and location (nine groups); the second method incorporates service mix as well as teaching status (four groups). While the use of more than one method is probably an indicator of uncertainty about grouping and a source of weakness in rigor, the fact that a hospital can be compared to hospitals having a similar service mix is unique to the BCWP program and an improvement on the notion of creating groups of equals.

The BCWP program allows for flexibility in consideration of peculiarities within groups through negotiation, adjustments, and the predictive cost model screen. As the analyst discovers atypical budget items, the hospital is notified and negotiation proceeds. This practice, along with the potential for appeals, ensures some concern for treatment of truly unique circumstances. The program also provides for adjustments for extraordinary phenomena, another device for internalizing flexibility into the process.

The predictive model of hospital costs in western Pennsylvania, which is used as a budget screen, is institution specific. Using a variety of hospital-specific predictor variables, the projected cost is determined. This analytic device incorporates many characteristics of individual institutions and, as such, generates an overall screen that treats hospitals as either unique or alike as appropriate.

One difficulty in maintaining equity across hospitals is the lack of uniform accounting principles and an inability to enforce uniform reporting requirements. Budget analysts convert financial data to a uniform, departmental system, but the equity of this after-the-fact transcription is not known. Scrutinizing financial records to design a reimbursement system that treats equals equally clearly mandates a uniform procedure for generating those financial records.

Efficiency

The cost of administering the BCWP reimbursement system will be difficult to disentangle from the BC operating budget because of the multiplicity of shared administrative services within BCWP itself. However, it does seem that this program, because of its locus within BCWP, may well be administratively efficient relative to a new, independent, private, or public reimbursement authority.

This advantage, however, may be offset by administrative inefficiencies in coordinating reimbursement policy with other programs aimed at cost containment (planning, CON, Insurance Commission, PSRO, etc.). As part of

the health service industry, BCWP is, in many ways, an object of regulatory cost control of these other entities, and coordination on matters of hospital reimbursement may therefore be awkward. In a state without CON, the problem of consistency between capital spending and reimbursement policies has not been faced. The fact that reimbursement control is with BCWP, however, may mitigate against the need for effective cost containment coordination with other agencies.

APPENDIX A

List of Hospitals in Voluntary PR Programs Administered by BCWP

TABLE A-1: LIST OF HOSPITALS IN VOLUNTARY PR PROGRAMS ADMINISTERED BY BCWP

Name	County	Type	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979
Aliquippa	Beaver	M/T	-	-	-	BC, 18	BC, 18	BC, 18,19	BC, 18,19	BC, 18,19
Allegheny General	Allegheny	M/AV/T	-	-	-	BC, 18	BC, 18	BC, 18,19	BC, 18,19	BC, 18,19
Andrew Kaul Memorial	Elk	NU/NT	-	-	-	-	BC, 18	BC, 18,19	BC, 18,19	BC, 18,19
Bradford	McKean	NU/NT	-	-	-	-	BC	BC, 18,19	BC, 18,19	BC, 18,19
Brookville	Jefferson	NU/NT	BC	BC	BC, 18	BC, 18	BC, 18	BC, 18,19	BC, 18,19	BC, 18,19
Charles Cole	Potter	NU/NT	BC	BC	BC	-	-	-	-	-
Children's	Allegheny	M/AV/T	-	-	-	-	-	-	-	BC, 18,19
Citizens General	Westmoreland	M/T	-	-	-	-	-	BC, 18,19	BC, 18,19	BC, 18,19
Clearfield	Clearfield	NU/NT	BC	BC	BC, 18	BC, 18	BC, 18,	BC, 18,19	BC, 18,19	BC, 18,19
Doctors Osteopathic	Erie	U/T	-	-	-	-	-	BC, 18,19	BC, 18,19	BC, 18,19
DuBois	Clearfield	NU/NT	BC	BC	BC, 18	BC, 18	BC, 18	BC, 18,19	BC, 18,19	BC, 18,19
Elk County General	Elk	NU/NT	-	-	-	-	BC	BC, 18,19	BC, 18,19	BC, 18,19
Forbes Health System										
Columbia	Allegheny	M/T	-	-	-	-	BC, 18	-	-	-
Pittsburgh	Allegheny	M/T	-	-	-	-	BC, 18	-	-	-
Harmarville Rehab	Allegheny	M/NT	BC	BC	BC, 18	BC, 18	BC	BC, 18,19	BC, 18,19	BC, 18,19
Henry Clay Frick Community	Westmoreland	M/NT	-	-	-	-	-	BC, 18,19	BC, 18,19	BC, 18,19
Magee-Womens	Allegheny	M/AV/T	-	-	-	BC, 18	BC, 18	BC, 18,19	BC, 18,19	BC, 18,19
Maple Ave.	Clearfield	NU/NT	-	-	-	-	BC	BC, 18,19	BC, 18,19	BC, 18,19
McKeesport	Allegheny	M/AV/T	-	-	-	BC, 18	BC, 18	-	-	-
Meadville	Crawford	NJ/T	-	-	-	BC, 18	BC, 18	-	-	-
Monsour Medical Center	Westmoreland	M/T	-	-	-	-	-	BC, 18,19	BC, 18,19	BC, 18,19
North Hills Passavant	Allegheny	M/T	-	-	-	BC, 18	BC, 18	BC, 18,19	BC, 18,19	BC, 18,19
Oil City	Venango	U/T	-	-	-	-	-	BC, 18,19	BC, 18,19	BC, 18,19
Podiary	Allegheny	M/NT	-	-	-	-	-	BC, 18,19	BC, 18,19	BC, 18,19
St. Clair Memorial	Allegheny	M/T	-	-	-	-	-	BC, 18,19	BC, 18,19	BC, 18,19
St. Vincent	Erie	U/AV/T	-	-	-	-	BC	-	-	-
South Hills Health System										
Homestead	Allegheny	M/T]								
Jefferson	Allegheny	M/T]	-	-	-	-	BC, 18	BC, 18,19	BC, 18,19	BC, 18,19
St. Joseph	Allegheny	M/T]								
Spencer	Crawford	NU/T	-	-	-	BC, 18	BC, 18	BC, 18,19	BC, 18,19	BC, 18,19
Suburban General	Allegheny	M/T	-	-	-	-	-	-	-	BC, 18,19
Westmoreland	Westmoreland	M/T	-	-	-	-	BC, 18	-	-	-

LEGEND

AV = Advanced
M = Metropolitan
NT = Non Teaching
NU = Non-Urban
T = Teaching
U = Urban
- = Not in Program
BC = Blue Cross
18 = Medicare
19 = Medicaid

APPENDIX B

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APPENDIX B

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HEW Publication
HCFA Pub. No. 80-03037